

Pornography Addiction – and the Demise of Mind, Body, and Soul



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Vice is a monster of so frightful mien
As to be hated needs but to be seen
Yet seen too oft, familiar, with her face,
We first endure, then pity, then embrace.

In the words of Stephen Arterburn, world renowned expert on sexual addiction, *“I don’t know of know of any plague to ever reach into the homes and families all over the world and create as much damage or heartaches than the struggle of lust, affair, pornography, perversion, and sexual addiction. It seems that everywhere I look, it gets worse and worse. The Internet exploded the problem, and now cell phones transport pornography more portably than the computer and facilitates affairs with greater accessibility and secrecy”* (cited in Roberts, 2008, p.9).

When I entered my profession in Pediatric Psychology some 35 years ago, I would never have guessed that I would be writing a paper on pornography addiction after seeing so many of my patients’ lives being derailed and even destroyed by the unsavory and soulless pornography industry. I have seen boys as young as 11 attempt to rape children as young as 3 after getting steamed up on porn, I have seen normal adolescent sexuality be hijacked and rewritten from something wonderful to something perverse, I have seen men go to jail and lose their careers, I have seen marriages fail – the toll is enormous and is mounting every day. The Utah state legislature has wisely declared pornography a national epidemic that is ripping the fabric of our society (Barta, 2018). I am writing this paper as a conversation to you, regardless of your age, gender, station in life, or career. You may or may not be struggling with pornography, but even if you aren’t, you undoubtedly know someone who is and your knowledge of fact from fiction and how to become free can possibly save the mind, body, and soul of that person. I want you to know that I offer no judgement for those who struggle. I, myself, struggled with soft porn magazine addiction as a teen and as a young man, a problem that carried into my marriage which it almost destroyed. I was lucky enough to have a wonderful wife who chose to not leave me and instead helped me engage in a life-saving therapy experience with a man who did not

“The views expressed are those of the author and do not reflect the official policy of the Department of the Army, the Department of Defense, or the U.S. Government.”

judge me and showed me the way out. I will forever be thankful and fully indebted to my wife and to Dr. Ebeye.

This paper will summarize my thoughts as well as the work of some of the best seminal writers on this topic who rightly deserve credit as noted below:



- **Barta, M.** (2018). *TINSA: Trauma Induced Sexual Addiction*. North Charleston, SC: CreateSpace Independent Publishing Platform.
- **Canes, P., et al.,** (2007). *In the Shadows of the Net: Breaking Free of Compulsive Online Sexual Behavior*. Center City, MN: Hazelden Foundation.
- **Doan, A.** (2012). *Hooked on Games*. Coralville, IA: F.E.P. International, Inc.
- **Fradd, M.** (2017). *The Porn Myth: Exposing the Reality Behind the Fantasy of Pornography*. San Francisco, CA: Ignatius Press.
- **Foubert, J.** (2017). *How Pornography Harms: What Today's Teens, Young Adults, Parents, and Pastors Need to Know*. Bloomington, IN: LifeRich Publishing.
- **Dines, G.** (2010). *Pornland: How Porn has Hijacked our Sexuality*. Boston, MA: Beacon Press.
- **Skinner, K.** (2005). *Treating Pornography Addiction: The Essential Tools for Recovery*. Lindon, UT: K. Skinner Corporation.
- **Turner, A.** (2017). *Breaking the Feedback Loop: How I Liberated myself from Internet Addiction and you can too*. Lexington, KY: Phanarian II.
- **Zimbardo, P. and Coulombe, N.** (2016). *Man Interrupted*. Newburyport, MA: Red Wheel/Weiser, LLC.
- **Wilson, G.** (2014). *Your Brain on Porn*. UK: Commonwealth Publishing.

We should first, as the Jesuits say, define our terms. The word "pornography" comes from the Greek words, "**porne**," meaning a harlot, prostitute, or whore, and "**graphos**," meaning a writing or depiction. If we put both words together, we arrive at "A depiction or description of the activities of whores" (Catholic News Agency). Webster elaborates to indicate that it also means "**A depiction of licentiousness or lewdness**," or "**A portrayal of erotic behavior designed to cause sexual excitement**" (Webster's Third International Dictionary).

Part One: So How is it?

I count him braver who overcomes his
desires than him who conquers his enemies;
for the hardest victory is over self.

- Aristotle

Skinner, (2005) writes, “The sexual exposure that we face is unparalleled in the history of mankind. With television, the Internet, magazines, billboards, movies, and DVD’s, our society has been dehumanized...The result of this desensitization process is that children and teenagers are faced with sexual decisions before they fully understand the consequences of their own sexual behaviors. A teenager caught up in Internet pornography doesn’t understand that his curiosity can lead to an addiction.”

If you are struggling with Internet pornography, you are not alone. The following alarming statistics highlight the gravity of the pornography crisis as nicely reviewed by Zimbardo (2016) and Covenant Eyes (2019) as well as others:

- In 1997, about six years after the World Wide Web was launched, there were about 900 online porn sites (Ogasa et al., 2011).
- Later in 2005, about 13,500 full-length pornographic films were released compared to only 600 Hollywood films (Ropelato, 2011).
- From 2001 to 2007, Internet porn went from a \$1-billion-a-year industry to \$3-billion-a-year in the U.S (Lambert et al., 2012).
- 40 million Americans watch porn regularly (Webroot, 2019).
- The porn industry earns more revenue than CBS, NBC, and ABC combined (Roberts, 2008).
- The societal costs of pornography are staggering. The financial cost to business productivity in the U.S. alone is estimated at \$16.9 Billion annually; but the human toll, particularly among our youth and in our families, is far greater (Weebroot, 2019).
- 40 million American people regularly visit porn sites (Webroot, 2019).
- 35% of all Internet downloads are related to pornography (Webroot, 2019).
- 34% of Internet users have experienced unwanted exposure to pornographic content through ads, pop up ads, misdirected links or emails (Webroot, 2019).
- One-third of porn viewers are women (Webroot, 2019).

- Between 2008 and 2011, exposure to porn among boys under the age of 13 jumped from 14% to 49%. Boys' daily use more than doubled. (Sun et al. 2016)
- In 2016, a study of 1565 18-19-year-old Italian students (Pizzol et al. 2015), 4 out of 5 stated they consumed pornography. Almost 22 per cent (21.9%) reported that it became habitual, 10% stated that it reduced their sexual interest towards potential real-life partners, and 9.1% reported a kind of addiction.
- In 2017, a Swedish study reported that nearly all respondents (98%) had watched pornography, although to different extents. Eleven per cent were found to be frequent users (watched pornography one or more times per day), 69 per cent average users (at least once a month up to several times a week, but less than once per day), and 20 per cent infrequent users (less than once a month). (Donevan & Mattebo 2017)
- In 2006, 35 per cent of Dutch children aged 8 to 12 had had a negative Internet experience in the home, involving an encounter with pornography. (Soeters & van Schaik 2006).
- Well over two-thirds of 15-17-year-old adolescents have seen porn websites when they did not intend to access them, with 45% being 'very' or 'somewhat' upset by it. (Kaiser Family Foundation 2001)
- According to National Coalition for the Protection of Children & Families, 2010, 47% of families in the United States reported that pornography is a problem in their home (National Coalition for the Protection of Children & Families, 2010).
- In 2012, Tru Research conducted 2,017 online interviews with teens, ages 13-17, and parents of teens (SCRIBD, 2019) and found that 71% of teens have done something to hide what they do online from their parents (this includes clearing browser history, minimizing a browser when in view, deleting inappropriate videos, lying about behavior, using a phone instead of a computer, blocking parents with social media privacy settings, using private browsing, disabling parental controls, or having e-mail or social media accounts unknown to parents). 32% of teens admit to intentionally accessing nude or pornographic content online. Of these, 43% do so on a weekly basis. Only 12% of parents knew their teens were accessing pornography.
- In a 2007 University of Alberta study, 429 students ages 13 and 14 from 17 schools across Alberta, Canada were surveyed about how often they accessed sexually explicit media content: 90% of boys and 70% of girls reported accessing sexually explicit media on at least one occasion (Betkowski, 2007).
- 35% of boys said they had viewed pornographic videos "too many times to count." In 2008, more than 560 college students responded to an online survey.
- According to a survey conducted by the Barna Group in the U.S. in 2014 (Proven Men Ministries, 2014:

The following percentages of men say they view pornography at least once a month: 18-30-year-olds, 79%; 31-49-year-olds, 67%; 50-68-year-olds, 49%

The following percentages of men say they view pornography at least several times a week: 18-30-year-olds, 63%; 31-49-year-olds, 38%; 50-68-year-olds, 25%

The following percentages of women say they view pornography at least once a month: 18-30-year-olds, 76%; 31-49-year-olds, 16%; 50-68-year-olds, 4%

The following percentages of women say they view pornography at least several times a week: 18-30-year-olds, 21%; 31-49-year-olds, 5%; 50-68-year-olds, 0%

55% of married men say they watch porn at least once a month, compared to 70% of not married men. Pornography Statistics: 25% of married women say they watch porn at least once a month, compared to 16% of not married women.

Part Two: So How Did I get Addicted to Porn in the First Place?



“Shallow men believe in luck or in circumstance. Strong men believe in cause and effect.”

- Ralph Waldo Emerson

So, let’s look at what is the root cause of all of this. There are writers who support singular theories. While each one has its own merit, I believe people get into porn for a myriad of reasons. It is important and helpful that we have some understanding of the root causes and of the neurological changes that ensue in the brain, body, and soul as this enables us to deal with **blame and shame** which puts us in a better place to begin the healing process.

Writers have described addiction as being a function of:

- Lack of connected living (Hari, 2015)
- Trauma (Barta, 2018)
- It started off as just plain fun
- Some blend of the above (emphasis mine)

While many ascribe “**moral failure**” as a root cause, I disagree with this wholeheartedly. Although a descent into addiction can lead to moral issues (e.g., lying to cover, sexual acting out, etc.) it is generally not moral failure that first sets pornography addiction into motion. This is essential to know as shaming only makes matters worse. Dr. Ted Roberts, who served in Vietnam as a fighter pilot, then became pastor, and subsequently distinguished himself as an expert in the treatment of sexual addictions writes, “Guilt is about what we have done, but shame is about who we are. With guilt we can always get a fresh start. With shame we are caught in a noose, because the problem stays with us...The critical issue to remember about shame is that it causes incredible pain” (Roberts, 2008, p. 73 – 74).



The role of connection:

Dr. Johann Hari author of *Lost Connections* and *Chasing the Scream* believes that much of addiction starts with a lack of “connection.” In a compelling TED talk on addiction Dr. Hari described the value of **connection** with references to Skinner’s research on addiction and ensuing. Rat Park research conducted by Dr. Bruce Alexander (2010).



In the 1960's, well-known psychologist B.F. Skinner conducted a series of studies involving rats in what became known as **Skinner Boxes**. In these experiments the rats were frequently starved and isolated and were then able to get tiny pellets of food as long as they pushed a little lever within the Skinner Box over and over. In ensuing addiction studies these rats would be tethered to the box's ceiling with a surgically implanted needle which extended to the rats' jugular vein and each time the rats pushed the lever, they would get a small morphine drip into their brain. The result of these rather barbaric and cruel studies was that the rats became hopelessly addicted which led Skinner and his colleagues to conclude that the power of the addiction was solely in the drug itself.

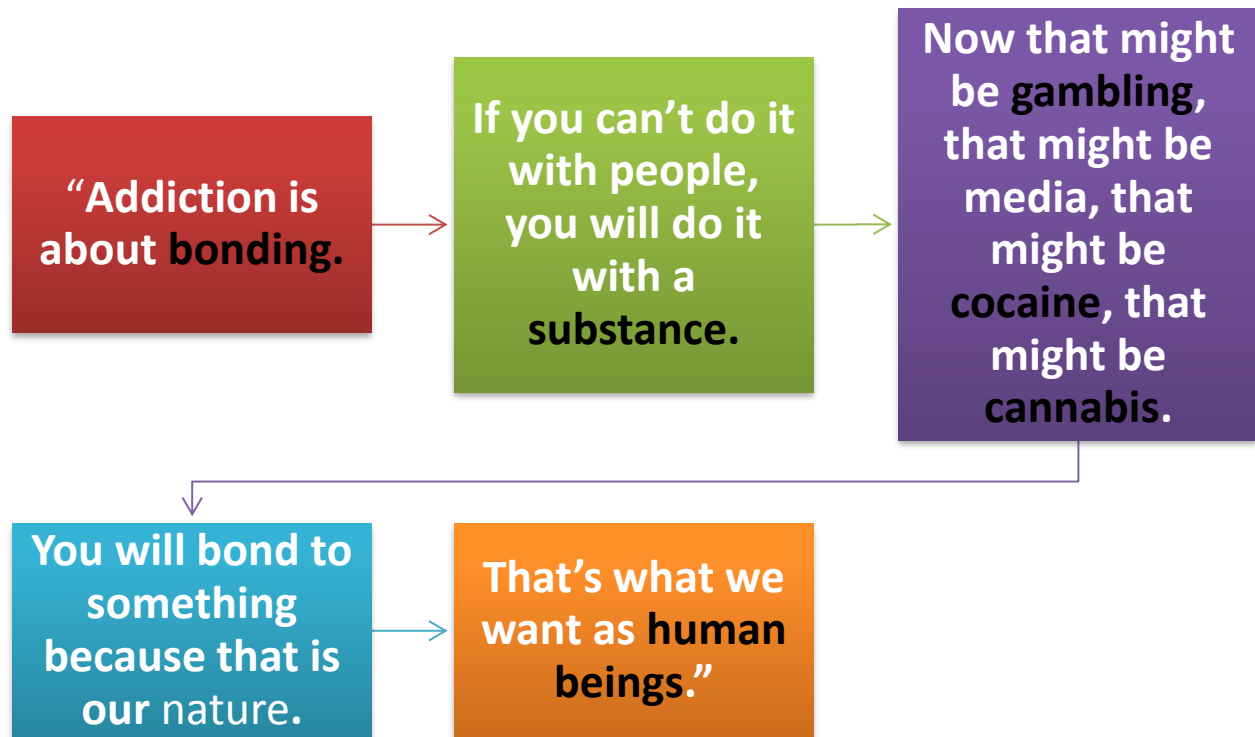
A decade later, a Canadian researcher, Dr. Bruce Alexander, became very skeptical of this research given that not all people who take a drug will become addicted to it. Being aware that rats in their natural habitat, like people, are powerfully social, Alexander wondered if the Skinner experiments were merely indicating that isolated rats are more likely to become addicted than non-isolated rats. With this premise in mind, Alexander and his research team developed an experiment with two groups of rats, each having free access to drug water; with one group being kept in isolation similar to the Skinner Box experiments and the other group consisting of several rats together in large open areas filled with fun things that rats love such as loads of food, platforms for climbing, running wheels, and tin cans to hide in. Happily, for the second group, it was co-ed and the rats were free to have sex, which they apparently enjoy similar to humans. The second group setting eventually came to be affectionately known as the **Rat Park**. The results were stunning; the isolated rats in the Skinner Boxes became total addicts and the rats in the open and enjoyable spaces of the Rat Park never became addicted, in fact, most of them never even touched the morphine water at all. Alexander eventually came to the conclusion that addiction was less about the pull of the drug but was more about the condition of the life of rat; specifically, without **connection** and **socialization** a rat is more susceptible to addiction. Moreover, he surmised, "People do not have to be put into cages to become addicted – but is there a sense in which people who become addicted actually feel 'caged?'. The view from Rat Park is that today's flood of addiction is occurring because our hyperindividualistic, hypercompetitive, frantic, crisis-ridden society make most people feel socially and culturally isolated...They find temporary relief in addiction to drugs or any of a thousand other habits (such as media – emphasis mine) and pursuits because addiction allows them to escape from their feelings, to deaden their senses, and to experience an addictive lifestyle as a substitute for a full life" (Alexander, 2010). Alexander later adds, "Addiction is not about your chemical hooks, it is about your cage, it is an adaptation to your environment."



Skinner Box

Rat Park

Hari (2015) in a TED talk nicely summarized his thoughts on the matter, “I’ve been talking about how disconnection is the major driver of addiction, and it’s weird to say (addiction has) grown, because we’re the most disconnected society that’s ever been, surely.” He adds, “Addiction is about bonding. If you can’t do it with people, you will do it with a substance. Now that might be gambling, that might be media, that might be cocaine, that might be cannabis; you will bond to something because that is our nature. That’s what we want as human beings.”



The role of trauma:

Dr. Michael Barta, in his excellent book on sexual addictions, TINSAs – Trauma Induced Sexual Addictions, along with several other writers, that sexual addiction has long been hindered by the disorder’s poorly understood cause. He notes and describes:

- Sexual addiction and specifically pornography addiction are typically triggered by early trauma
- Dopamine and self-regulation worsen addiction
- There is a relationship between the brain, the nervous system, and addiction

Trauma occurs when we are faced with an experience that overwhelms our ability to process incoming information both at the time of that experience and in future situations (Barta, 2018). Barta notes that trauma occurs when our natural defenses are unable to keep us safe from physical, emotional, or mental threats or harm.



In the mid-1980's, Dr. Vincent Felitti was commissioned by Kaiser Permanente to explore the issues of obesity, as nothing this hospital group was doing helped put a dent in improving this epidemic. His research led him to explore the impact of what he called the **Adverse Childhood Experiences (ACE)** Study (Felitti et al., 2014). In this study, people were asked about ten different categories of horrible things that happened to them when they were children to include physical and sexual abuse, family problems, and neglect. The results indicated that for every category of traumatic experience we have had as a child, we are dramatically more likely to be depressed as an adult. If we have had six categories of traumatic events as a child, we are five times more likely to become depressed as an adult and if we have had seven categories, we were a terrifying 3,100 percent more likely to commit suicide as an adult (Felitti et al., 2014; Felitti 2004; Felitti and Anda, 2009).



The ten reference categories experienced during childhood or adolescence are as below, with their prevalence in parentheses (Felitti and Anda, 2009):

Abuse

- Emotional – recurrent threats, humiliation (11%)
- Physical - beating, not spanking (28%)
- Contact sexual abuse (28% women, 16% men; 22% overall) •

Household dysfunction

- Mother treated violently (13%)
- Household member was alcoholic or drug user (27%)
- Household member was imprisoned (6%)
- Household member was chronically depressed, suicidal, mentally ill, or in psychiatric hospital (17%)
- Not raised by both biological parents (23%)

Neglect

- Physical (10%)
- Emotional (15%)

Somewhat surprising in the Felitti studies was that emotional abuse was more likely to cause depression than any other kind of trauma – even sexual abuse. This suggests that the kind of treatment children receive from parents is a tremendously powerful predictor of positive outcome and when that trust is broken, devastation surely ensues.

Barta (2018) defines ACEs a little differently as summarized below:

- Sexual assault or abuse
- Physical assault or abuse
- Psychological or emotional trauma
- Serious accidents, medical procedures, or illnesses
- Manmade or natural disasters
- Witnessing violence to include domestic abuse
- School violence to include bullying
- Traumatic grief or unwanted separation
- Terrorism or war
- Betrayal by others to include relational trauma

The experts in the field divide trauma into two categories:

- Big T trauma: Traumas that are associated with horrific single events such as natural disasters, terrorism, and war.
- Little t trauma: Trauma that are smaller in nature such as bullying, neglect, and betrayal.

BIG T	little t
<ul style="list-style-type: none">• War• Disasters• Childhood sexual abuse• Physical abuse• Car wreck• Crime victimization• Witnessing death• Domestic violence	<ul style="list-style-type: none">• Emotional abuse• Neglect• Failure experiences• Phobia related experiences• Losses• Stress at work or school• Bullying• Domestic violence

In my work as a pediatric psychologist, far more of my patients have been subjected “little t” traumas and I agree with Barta that these experiences have a tremendous impact on how children view themselves, their relationships, and their place in the world. Moreover, the long-term consequences of these traumas are tremendous and often lead to an inability or impaired ability to access appropriate responses to threatening events and can lead to chronic hyperarousal, intense anxiety, panic, mood instability, poor emotional/behavioral regulation, feelings of powerlessness, helplessness, shame, and even immobility. Of all traumas, relational trauma is particularly devastating.



Trauma changes the brain neurologically

The implications here are enormous. Specifically, in order to heal from our addiction, we must be able to pinpoint the where in the lifespan people hurt us physically, emotionally, mentally, or spiritually whether intentionally or accidentally. Barta (2015) provides several examples of trauma often reported by individuals who suffer from sexual/pornography addiction as noted below. To be clear, most of us experience at least some of these traumas. If we can resolve them, we can move on and experience a more fulfilling life. On the other hand, many addicts cannot resolve them, and it is those unresolved issues that open the gateway to addiction as a means of coping.

Examples of small traumas that can pave the way to pornography addiction as noted by Barta (2015):

- They were not attuned to by their caregiver
- They were invalidated for the child they were
- They were not recognized emotionally
- They were rejected
- They were subjected to parental separation or divorce
- They were made to feel inadequate
- They were made to feel responsible or making the family feel good
- They were sexually abused
- They were punished for being authentic
- They were controlled by anger
- They were made to feel responsible for regulating the feelings and emotions of others
- They were not taught how to deal with their own emotions and/or were punished when trying to do so
- They were made to feel unsafe
- They were inappropriately disciplined/punished – kicked, slapped, or violently shaken
- They experienced the loss of a pet, young love, or friendship

My experience is that the most common forms of trauma are due to a lack of attunement or connection with parental or adult figures while growing up. As Barta (2015) writes, “These deficiencies are not about bad parenting but about a parent’s inability or diminished ability to respond to the child’s emotional needs. Most parents are doing the best they can with the tools they have, but whether deliberately or inadvertently, the traumas of our childhood can have tremendous impact on our lives (Barta, 2018, p. 17).

As trauma expert Dr. Peter Levine notes in his book, *Healing Trauma*, “Trauma is much about loss of connection – to ourselves, to our bodies, to our families, to others, and to the world around us. This loss of connection is often hard to recognize, because it doesn’t happen all at once. It can happen slowly over time, and we adapt to these subtle changes sometimes without even noticing them. These are the hidden effects of trauma, the ones most of us keep to ourselves...Our choices become limited as we avoid certain, feelings, people, and situations. The result of a gradual constriction of freedom is the loss of vitality and potential for the fulfilment of our dreams” (Levine, 2008, p. 9).

Most important to normal development is “**social engagement**” which is the ability to know, understand, regulate, and express emotions in the present moment. Even though everyone is born with a social engagement system (i.e., a neurological system that promotes human connection), we know that early trauma can disrupt its normal development. Anda et al (2018) note, “Early adverse

experiences may disrupt the ability to form long-term attachments in adulthood. The unsuccessful search for attachment may lead to sexual relations with multiple partners with resultant promiscuity and other issues related to sexuality” (e.g., pornography addiction, emphasis mine). As a result of adverse developmental trauma, the ensuing loss of connection with our inner self, our bodies, others, and the world around us, we are predisposed to engage in addictive behaviors to relieve the emotional dysregulation that torments us.

Barta (2018) conjectures, and we agree, that pursuing an addiction is an extremely effective solution that works, but only initially. Addiction, he writes, is a guaranteed solution that promises the prospect of making everything better. Sadly, in the long term, this fix is nothing better than a small bandage on a deep wound. Indeed, the addiction, in this case pornography, initially kills the unbearable pain but it comes at a price – one that demands payment.



It will cost your happiness, your ability to connect with a wholesome life, your family, your career, your reputation, your dignity, **and possibly your life**. In short, it can cost you everything – and nothing is worth that price!

It's just fun:

Many young people accidentally discover pornography, many others are introduced to it by another person, usually a peer, partner, or a sibling. And, indeed they find it tantalizing and fun. They are not seeking to avoid pain nor are they necessarily suffering from a loss of connection to good living. So what starts off innocently enough, ends up changing their neurology and they “accidentally” become hopelessly addicted.

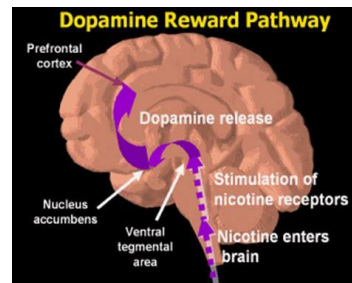
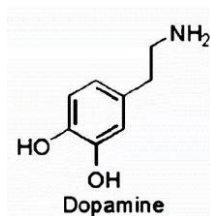
Part Three: The Neuroscience of Addiction

The Role of Dopamine:

Men have become the tools of their tools

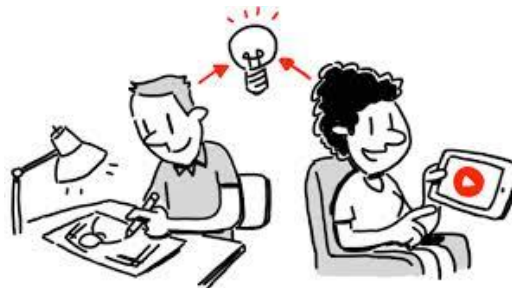
- Thoreau

As Kardaras (2016) stated in his book, *Glow Kids*, that in order to fully understand addiction, we need to understand the brain's reward system and the impact of **dopamine** on that reward pathway.



Specifically, how much dopamine is activated by a substance or behavior is correlated directly with the addictive potential of that substance or behavior. **Dopamine**, as many of us know, is the “feel-good” neurotransmitter that is the most critical and important part of the addiction process. Dopamine was discovered in 1958 by Arvid Carlsson and Niles-Ake Hillarp at the National Heart Institute of Sweden. As also noted by psychologist Dr. Susan Weinschenk (2009) **dopamine** is created in various parts of the brain and is critical in several brain functions to include:

- Thinking
- Moving
- Sleeping
- Mood
- Attention
- Motivation
- Seeking and reward



Inspired to watch because of dopamine.

When an individual performs an action that is satisfying to a need or fulfills a desire, dopamine is released into the nucleus accumbens, a cluster of nerve cells beneath the cerebral hemispheres that are specifically associated with reward and pleasure. This is also known as the brain's “**pleasure center**.”

Basically, engaging in a pleasure-seeking behavior increases dopamine levels so that the dopamine pathway is activated which tells the person to repeat what s/he just did in order to continue that “feel-good” sensation or as what Kardaras calls it “**the dopamine trickle**.” From an evolutionary perspective, this dopamine trickle is an important survival mechanism as it rewards, and thus, incentivizes essential and important biological and social functions such as eating, procreation, love, friendship, and novelty seeking. Natural dopaminergic activities, such as eating and sex usually come after effort and delay and, as previously mentioned, serve a survival function. These are called the “**natural rewards**” as contrasted with addictive chemicals/behaviors (which can hijack the same circuitry). In other words, addictive drugs and behaviors, such as gambling and video gaming, actually offer *a short-circuit* to this process which only ends up flooding the nucleus accumbens with dopamine and does not serve any biological function.

As Wilson (2014) points out, the evolutionary purpose of dopamine is to motivate you to do what serves your genes. The bigger the hit of dopamine, the more you want or even crave the goal. Dopamine surges are the barometer by which you determine the potential value of any particular experience. Moreover, dopamine tells you what to remember by rewiring your brain by virtue of new and even stronger nerve connections.

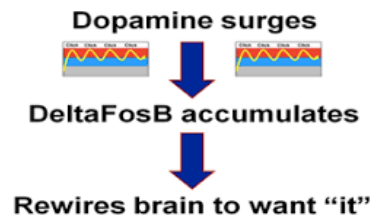


A doctor looks at a heroin addict's brain scans. New research shows men who say they are addicted to porn ... develop changes in the same area – the reward center – that changes in drug addicts.' Scan images show that watching online 'adult' sites can alter our grey matter, which may lead to a change in sexual tastes (The Guardian, 2013)

Although dopamine has been referred to as the “pleasure molecule,” it is more about seeking and searching for pleasure, rather than pleasure itself. Dopamine is more involved in drive and motivation to seek. The “final reward” or what we experience as feelings of pleasure, Wilson (2014) writes, involve the release of **endogenous opioids**. You can think of dopamine as “wanting” and opioids as “liking.” As psychologist Dr. Weinschenk explains, dopamine causes us to want, desire, seek out and, search; however, the dopamine system is stronger than the opioid system and we hence seek more than we are as satisfied...” Seeking is more likely to keep us alive rather than sitting around in a satisfied stupor. (Weinschenk, 2009). “Addicts want it more but gradually like it less. Addiction might be thought of as *wanting gone amok*.” (Wilson, 2014).

Wilson (2014) goes on to explain that the neurological process does not stop there. Highly salient activities, in this case addiction, lead to the accumulation of **DeltaFosB**, a protein that activates the genes involved with addiction. The molecular changes it potentiates are almost identical for both sexual

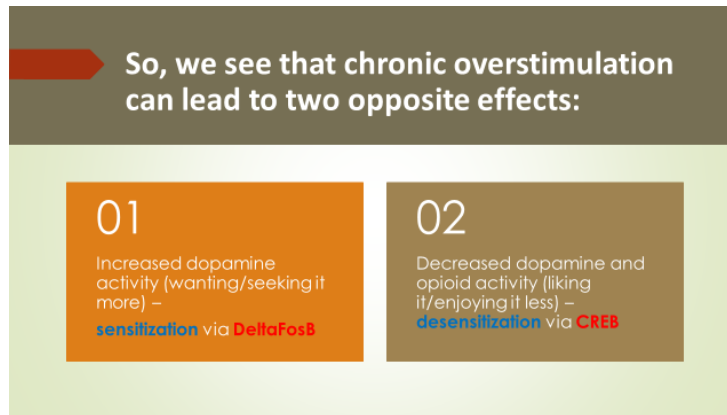
conditioning and chronic drug use. Specifically, **DeltaFosB** rewires the brain to crave IT whatever IT is. This is quite adaptive in situations in which survival is furthered by overriding satiation mechanisms (e.g., 'I'm full, I'm done.'). In terms of survival of the species, Wilson points out that excess food or sex signals the brain that you have hit the "evolutionary jackpot" and a powerful incentive kicks in gear. For example, wolves which need to stow away huge amounts of food (up to twenty pounds) of a single kill will continue to consume their kill even though they are full. This is particularly salient in porn addiction. In a sense, dopamine is like the foreman on a construction site barking orders and **DeltaFosB** is the worker on the site. Dopamine is yelling, "This activity is really important, and you should do it again and again" (Wilson, 2014). **DeltaFosB** is responsible for ensuring that you remember and repeat the activity. This repeated process produces what is called **sensitization** which is based on the principle, "Nerve cells that fire together, wire together." Repeated activity strengthens cell connections.



As the brain recognizes that it needs a rest, it will kick out **CREB** to slow things down. In essence, **DeltaFosB** acts like the gas pedal and **CREB** functions as the brakes. It specifically inhibits dopamine and endogenous opioids to take the joy out of the binging/addictive behavior or substance so that you can give it a rest (Wilson, 2014). This numbed pleasure response that is induced by CREB is often identified as **desensitization** which leads to **tolerance** - the need of increasingly higher doses to achieve the same effect. Tolerance is a key factor in addiction (Wilson, 2014).

While **CREB** can help to perhaps curb less sensational behaviors such as too many portions of a good meal, it has little chance against high valence substances such as cocaine, porn media, and intense game media. This leads to what Wilson (2014) calls "*nature's cruel joke*." Specifically, **CREB's** attempt to suppress dopamine and natural/endogenous opioids is insufficient to shut down the process in highly salient addictions/behaviors in today's world. Therefore, the person's pleasure response is not sufficiently attenuated, so he/she is driven to more extreme addiction behavior. In other words, **CREB** can lead to tolerance, which can result in more compulsive use and escalation, which is particularly salient in porn addiction. So, we see that chronic overstimulation can lead to two opposite effects:

- Increased dopamine activity (wanting/seeking it more) – sensitization via DeltaFosB
- Decreased dopamine and opioid activity (liking it/enjoying it less) – via desensitization via CREB

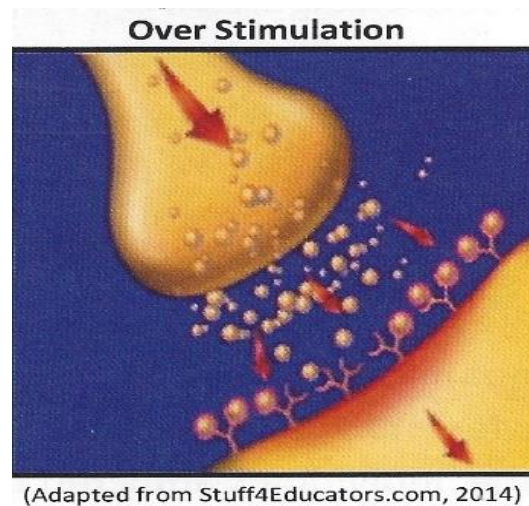
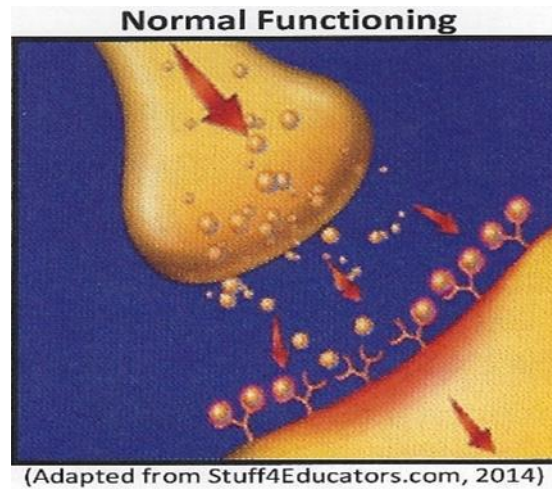


Sadly, the evolutionary process has not provided any way to withstand that onslaught of dopamine in that when we become addicted, we experience a reduction of dopamine or a shutdown of dopamine in order to give some reprieve to the overwhelmed receptor cells. So, with this reduced capacity to produce dopamine naturally, we enter into a vicious cycle whereby we need to ingest increasing amounts of the addictive substance in question or engage in the addictive behavior in question just to maintain our dopamine level (Wilson, 2014).

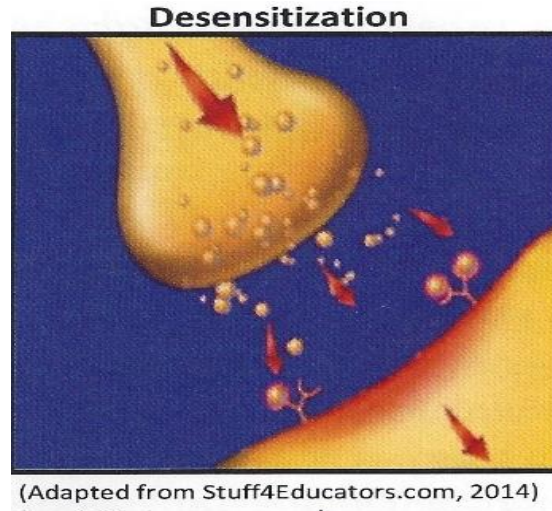
Then, as a “double whammy,” this chronic exposure to addictive behaviors or substances then impacts negatively on the prefrontal cortex, which among other things is the brain’s decision-making center which is associated with impulse-control or “braking mechanism.” As the prefrontal cortex’s braking mechanism becomes increasingly impaired, we are far less able to put on the brakes and refrain from the addictive substance or behavior (Wilson, 2014).

More on **Sensitization** and **Desensitization** on a cellular level:

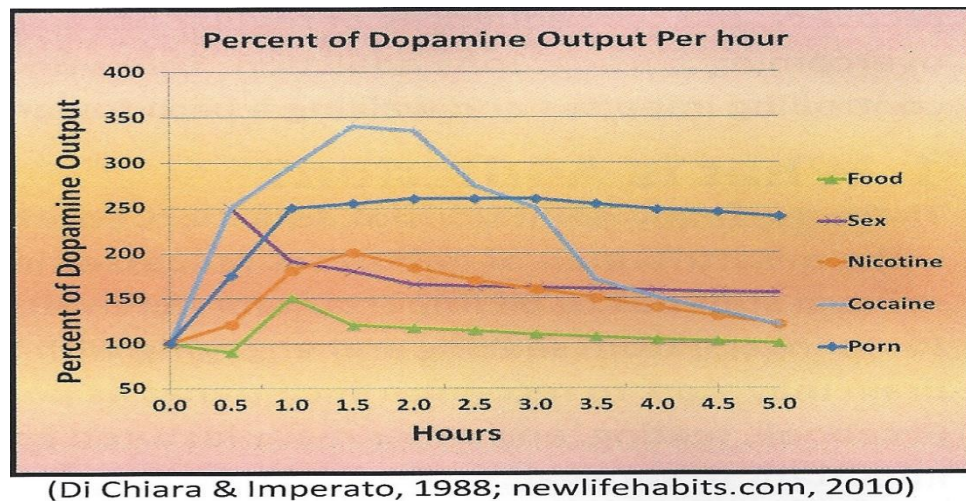
Sensitization: Dr. Robert Diding in his workbook, *Pornography Addiction: Breaking through the Chains*, nicely describes the biological changes on the cellular level that occur. Specifically, the first biological process, sensitization, begins when a source of stimulation is associated with high levels of dopamine and the brain becomes hypersensitive to this resource. In the case of pornography, the images become burned into memory creating “super memories” that the brain recalls regularly to stimulate the desire to seek more pornography (Diding, 2018). So, at the synapse (the space between neurons which connect via tiny vesicles of dopamine that cross over to fire up the next neuron) there is an increase of dopamine vesicles crossing that synapse. The images below as noted in Diding’s book below portray the changes:



Desensitization: The next step in the process of developing addiction on the cellular level is desensitization which refers to a general dialing down (as previously noted) of responsiveness to all forms of pleasure. This process occurs as result of prolonged dopamine production (Volkow et al., 2101). As Dindinger (2018) notes, when high valence stimuli such as pornography are encountered, dopamine increases dramatically which eventually results in overstimulation which is something that we might like but our brain doesn't. As with most biological processes, our brain will seek a state of homeostasis or normalcy. Dindinger adds that our brain effectively retaliates by reducing the amount of receptor cites available to receive the dopaminergic stimulation. Sadly, this loss of receptor sites during desensitization effectively and qualitatively changes the way we experience normal sources of pleasure. As a result, the essential and healthy survival resources such as friends, food, family achievement, social activities, and dating become weaker and less pleasurable and we pursue them less or stop pursuing them altogether. In other words, sources that used to bring us pleasure no longer hit the mark and we then seek higher and higher valence sources in the quest of more intense dopamine.... thus, we seek more extreme levels of pornography to achieve this.



As can be seen in the chart below:



Summary of dopamine increases:

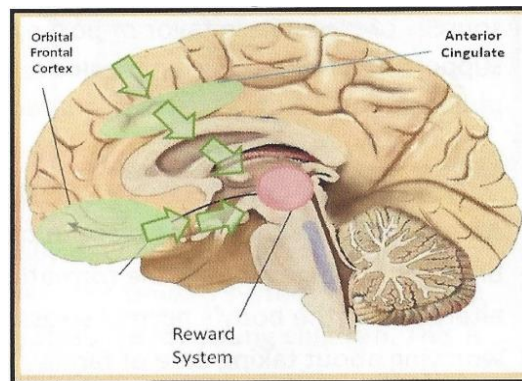
- Food – 150% increase
- Nicotine – 200% increase
- Snorting cocaine – 350% increase
- Sexual intimacy – 250% increase
- Pornography – 250% increases and stays elevated for longer – even when compared to cocaine

The use of pornography increases dopamine the same as sexual intimacy does, 250%, but what is alarming is that it maintains the dopamine level much longer. Dr. Didinger comments that even an extremely addictive drug like cocaine which increases dopamine by 350%, the dopamine levels decrease much faster than with pornography. As such, he notes that the brain interprets pornography to be extremely valuable and necessary for survival, thus essential to maintain which helps to perpetuate the descent into addiction (Didinger, 2018).

Hypofrontality – Not a good thing:

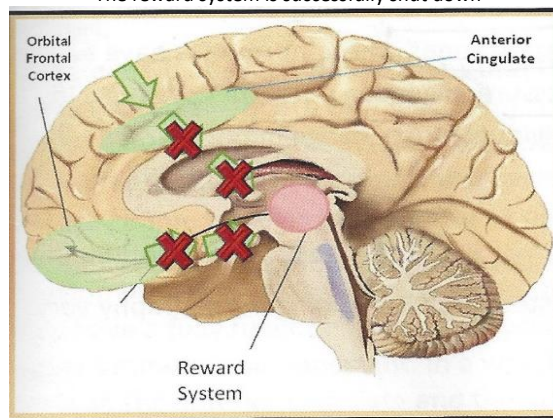
As Dindinger (2018) points out, in the beginning of developing an addiction such as pornography, sensitization and desensitization of dopaminergic pathways are the primary driving forces. Once an addiction is on its way to becoming fully established, hypofrontality kicks in to ensure that the new substance of behavior is maintained. In many ways, hypofrontality is very insidious as it removes our ability to override or stop porn-seeking (Hilton, 2007).

Two areas of the brain, the **anterior cingulate** and the **orbital frontal cortex**, serve as a protective mechanism to counter the reward system's desire for ever increasing dopamine increase. Specifically, they help us to avoid and/or continue in activities or behaviors that could potentially harm us. For example, Freddy wants to ditch football practice and go off with friends to smoke some weed which would greatly increase dopamine and help to begin the process of rewiring his brain. However, the anterior cingulate and orbital frontal cortex jump in and suppress the reward system to avoid the negative consequences of possibly being kicked off the team, not to mention losing the car keys.



(Adapted from Study Blue, 2007)

The reward system is successfully shut down



(Adapted from Study Blue, 2007)

The reward system fails to get shut down

The Marriage of Triune Brain Theory and Polyvagal Theory:

Barta (2018) proposes a model that demonstrates how the brain and the nervous system work together to fuel addiction. In his model which he calls TINSAs (Trauma Induced Sexual Addictions), he pairs some of the greatest minds in neurology and psychology to include Dr. Stephen Porges' **Polyvagal Theory** and Maclean's **Triune Brain Theory**.

In order to more fully understand what is going on within us that begins to drive us to addiction, we must dig a little deeper and learn some neuroscience. We will again look to Barta (2018) for guidance.

Triune Brain Theory:

Triune Brain Theory

Lizard Brain	Mammal Brain	Human Brain
Brain stem & cerebellum	Limbic System	Neocortex
Fight or flight	Emotions, memories, habits	Language, abstract thought, imagination, consciousness
Autopilot	Decisions	Reasons, rationalizes



The Triune Brain in Evolution, Paul MacLean, 1960

MacLean (2009) proposed that there are three distinct formations in our brain which are used in different situations for everyday survival purposes. These specific structures developed sequentially on top of each other at different times during the evolution of the brain for the purposes of giving the organism the ability to survive during that period of time. Even though the brain became more advanced and adaptive, the older more primitive structures of the brain still play a very important role in thought, process, and behavior.



Dr. Paul MacLean

(For my Christian friends who might worry about this model contradicting sensitivities about creationism – not to worry. As explained by Dr. Andy Doan, M.D. Ph.D., Ophthalmology surgeon and neuroscience researcher, and paraphrased by me, “God is very efficient, and He included in our more developed brain substructures that He already designed for lower life forms/animals. No need to re-do what was already perfect and efficient”).

As described by Barta (2018) they are described below:

The Reptilian Brain (or Reptilian Complex):



As the name suggests, this is the most primitive brain and it developed about 500 million years ago in fish and later reptiles. Its roles include sensation, instinctual reaction, breathing, temperature regulation. Tinsa hypothesizes that the reptilian complex promotes certain survival functions as well, most specifically, immobilization or freeze. We often see lizards, for example, freeze in the face of danger such as a lunch-starved predator in an instinctive reaction that can be life-saving (sadly for the lizard, it doesn't always work, and he sometimes ends up being snack anyway). We also see this in humans in the face of terrifying situations. Like our lizard friends, it sometimes works, and other times gets us killed.

The Mammalian Brain (or Limbic System):



Later, about 150 million years ago, the limbic system first appeared in small animals. This system developed as critters were able to move more freely about as they were now equipped with extremities. As such, it often became necessary to either fight off or flee from would-be predators. In addition, the capacity to have memory and emotions developed. This enabled the animal to control the body's response to danger and to remember that danger as well as the ability to be vigilant and scan the surrounding environment for potential dangers. Like critters, we often revert to this neurological system when we act instinctively.

The Frontal Lobe (or Neocortex):



According to Maclean (1990), the frontal lobes came on board only about 2 or 3 million years ago. As in the reptilian brain and the limbic system, the purpose of this brain formation is to react to and protect us from danger. But unlike our more primitive neighbors, this system reacts **consciously**. Very importantly, there was a need to develop a system that made possible more “civilized” responses to threats and at the same time one that offered the possibility to *connect* to others for safety. Therefore, the frontal lobe allows us to access a new way of surviving based on **socialization**. This makes it possible for us to use analysis, logic and decision-making, and this is what specifically separates us from other lower-ordered animals that rely on instincts alone for survival.

To bring it home, on topside we have the cortical brain consisting of the frontal lobe which is the most recently developed portion of the brain, i.e., **the conscious, thinking brain**. At the bottom, we have our subcortical, unconscious brain, which is made up of the **reptilian and limbic complexes** and is directed largely by raw instinct and emotions which often results in immediate knee-jerk reactions that happen in a split second. Barta (2018) informs us that, in the best of worlds, we try to lead with our frontal lobe and remain socially engaged if something threatening confronts us and in order think our way out of it, smile, and/or stay calm. But in times of intense stress or in situations that remind us of past trauma, this survival mechanism is quickly overrun by earlier, more primitive survival strategies of our mammalian/limbic brain and our reptilian brain structures. As such, when our neocortex fails us, the limbic system takes command and we are then rapidly sent into our fight-or-flight response and if this does not work and we cannot run away or fight our way out of it, the most primitive line of defense is deployed and we simply freeze, become immobilized, or completely collapse. This hijacking process can occur whether the threat is real or merely perceived (Barta, 2018).

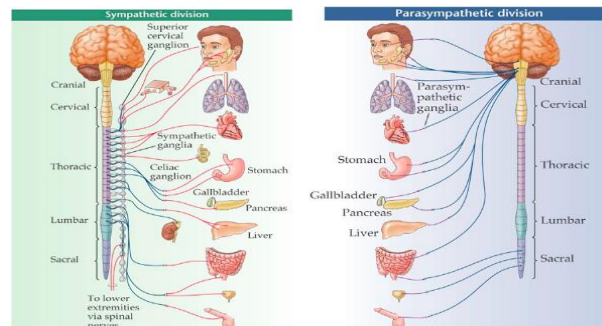


According to Barta (2018), addicts to include pornography addicts, live much more in their unconscious, emotional, and instinctual brains than in their frontal lobe or social engagement system. As such, when the limbic and reptilian brain take charge, the conscious brain switches off and the higher order brain is essentially hijacked, and we end up not thinking and instead just reacting. As a result, consequences are not weighed very heavily, if at all.

As a postscript to this discussion on Triune Brain Theory, Perry and Pollard (1997) have suggested that people who have experienced trauma, both in utero and shortly thereafter, develop fewer dopamine receptors early in life which can predispose them to addiction. With a deficit in dopamine receptors, that person is set up to search for something to make him or her feel good and oftentimes that is sexual stimuli. What better avenue is there to accomplish that than with pornography as it is so readily and freely available. This floods the **nucleus accumbens** with too much dopamine. Moreover, the first solution we find to this problem of lack of dopamine, Barta (2018) asserts, is usually the one that we return to time and time again. No wonder that I have had kids of trauma in therapy tell me that they first started looking at porn as young as five years of age 5 – an age when most kids are learning their ABC's and how to read their first words.

Polyvagal Theory:

In order to move forward in our understanding of what is happening to us as we progress toward addiction, we must understand Steven Porges' Polyvagal Theory and then integrate this knowledge with Triune Brain Theory. So, first a little anatomy. The Autonomic Nervous System is a control system that acts largely unconsciously and regulates bodily functions such as heart rate, digestion, respiratory rate, pupillary response, urination, and even sexual arousal. It has two main subdivisions: Sympathetic and Parasympathetic.



- Sympathetic Division: Prepares the body for stressful or emergency situations – fight or flight. Thus, the sympathetic division increases heart rate and the force of heart contractions and widens (dilates) the airways to make breathing easier. It causes the body to release stored energy. Muscular strength is increased. This division also causes palms to sweat, pupils to dilate, and hair to stand on end. It slows body processes that are less important in emergencies, such as digestion and urination (Merck Manual).
- Parasympathetic Division: Generally, the parasympathetic division conserves and restores calm/homeostasis. It slows the heart rate and decreases blood pressure. It stimulates the digestive tract to process food and eliminate wastes. Energy from the processed food is used to restore and build tissues (Merck Manual).

Steven Porges discovered that the parasympathetic division of the Autonomic Nervous System consists of two branches which lead to two different responses. The main nerve in the parasympathetic nervous system is the 10th cranial nerve, aka **vagus nerve**, which is the largest of the 12 cranial nerves and has huge implications for our well-being and health. The vagus nerve has two very distinct branches: **Dorsal vagal nerve** and the **ventral vagal nerve**.

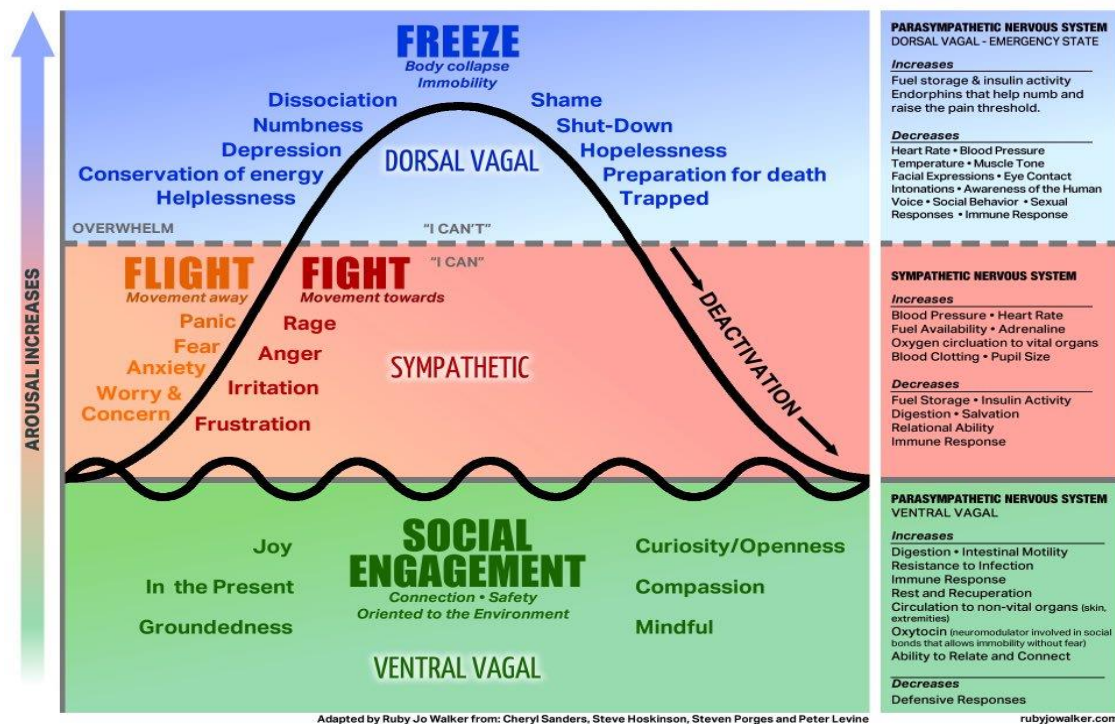


Dr. Steven Porges

- Dorsal Vagal Nerve: Barta (2018) notes that the most primitive form of defense occurs when the dorsal vagal nerve is activated. When activated, the dorsal vagal nerve promotes shutdown,

freeze, and collapse. An example of this shutdown is when a gazelle, for example, is being stalked by a lion and when trapped with no possible way to flee, drops down and appears to be deadlier than a doornail. This not a conscious process but is, rather, a very primitive and unconscious one.

- **Ventral Vagal Nerve:** Barta (2018) writes that the second response of our parasympathetic nervous system (the first being freeze and collapse as noted above) is responsible for our ability to engage socially and to handle social relationships. According to Barta, the social engagement system is controlled by our ventral vagus nerve which is a very smart nerve with a rapid response time. As such, it allows us to “know” if we are safe enough so we can calm our defenses through a process of “neuroception” which is roughly translated as the brain’s ability to sense safety. This serves not only bonding needs but allows us to shift out of sympathetic arousal and move into parasympathetic calm or to downshift from activation to calm.



Through the marriage of MacLean’s Triune Brain Theory with Porges’ Polyvagal Theory, we can explain how each part of the triune brain is correlated with the three responses of the autonomic nervous system (Barta, 2018). The key concepts are summarized below:

Sympathetic

Limbic System (Mammalian Brain)
Developed 500 million years ago
Fight or Flight
Unconscious

Social Engagement (Parasympathetic – Ventral Vagal)

Frontal Lobe (Neocortex)
Developed 2 to 3 million years ago
Ventral Vagal
Present/Safe/Aware
Conscious

Parasympathetic (Dorsal Vagal)

Reptilian Brain (Reptilian Complex)
Developed 150 million years ago
Freeze
Unconscious



In summary, excessive media and specifically pornography serve to dangerously pull us out of the neocortex (wise thinking and conscious state) and into our reptilian brain (reflexive and unconscious state). At the same, this behavioral addiction shuts down much needed parasympathetic calmness and safety as well as connection and social engagement and artificially fires up sympathetic arousal which impacts on our health emotionally, physically, and spiritually.

Part Three – The Impact of Pornography:

In his compelling book, *How Pornography Harms*, Professor and Dr. John Foubert, an interdisciplinary scholar who has studied sexual violence since 1993 and the harms of pornography since 2006, reminds us of how, in contrast to a mountain of data available, the tobacco industry icons testified before Congress in 1994 that they believed that cigarettes were not addictive or harmful. In a very similar way, Dr. Foubert notes that there are powerful voices today that try to convince us that pornography isn't harmful either (Atwood et al., 2014). He adds that there are over **100 studies** which demonstrate that pornography harms people, often horribly and sometimes irrevocably (Malamuth et al., 2000; Peter et al., 2016).

Wilson (2014) notes that all addictions, regardless of their differences, result in an established set of “core brain changes” which, in turn, present as recognized signs, symptoms, and behaviors which have been labeled the Three C's:



1. **Craving and Preoccupation** with obtaining, engaging in or recovering from the use of the substance or behaviors in question.
2. **Loss of Control** in using the substance or of engaging in the behavior and noted by increasing frequency or duration, larger amounts or intensity, or increasing the risk and behavior in an effort to obtain the desired effect.
3. **Negative Consequences** in physical, social, occupational, financial, or psychological areas.

The Impact of Pornography on the Body:

When we are exposed to too much pornography and/or sexuality, it can be excessively overstimulating to the brain. Moreover, as we have noted earlier, trauma is also a function of overstimulation or by the input of too much information. The brain is simply not designed to process an event that is so sensationally overwhelming, dense with information, or involving too much stimulation (Barta, 2018). Gary Wilson (2014) writes that we are not wired to see the amount of sexuality that permeates in Internet pornography. He adds that just **one pornographic Internet exposure today is filled with more sexual content/information than most all his ancestors saw in their entire life**. As such, Barta asserts that pornography by itself is not only a behavior which is often chosen to temporarily offer relief to trauma but has the potential to also be the very cause of trauma. In the same way that early trauma can cause the proper brain function to effectively be stunted, early trauma can also cause functional irregularities to the autonomic nervous system.

In an interview with Dr. Foubert, Dr. Donald Hilton, who has authored many studies on the addictive nature of pornography, referenced research that shows that the more people watch pornography, the more their **brains actually shrink**. Related to this, research has also demonstrated that watching pornography **slows down the working memory** (aka short-term memory) (Laier, et al., 2013). Along with this line of research, Kuhn and Gallinat (2014) found **decreased gray matter** in the brain areas that are responsible for decision making and motivation of porn seekers. It is particularly significant that this

study was not on porn addicts but simply on males who consume pornography. It is frightening that you don't even have to be "addicted" to porn but that merely using it begins to change the brain in negative ways. So, if you ever thought that pornography was making you **dumber**, you were absolutely right.



Dunckley (2015) notes that that excessive time on screens in any form (and by association, pornography viewing – emphasis mine) has huge impact on the body. As a result of electronic screen interaction/porn seeking:

- Blood flows away from the organs like the gut
- Blood pressure increases
- Stress hormones are released

All these processes prepare the body for fight-or-flight. The research indicates that all forms of screen-time create subtle changes in the cardiovascular system which can cause significant damage over the course of time. The fact that screen-time is associated with what Dunckley (2015) refers to as **metabolic syndrome** is very concerning. Metabolic syndrome is a combination of the following:

- High blood pressure
- Midsection weight gain (spare tire)
- Abnormal cholesterol levels
- High fasting blood sugar



Metabolic syndrome is a serious condition that can promote:

- Diabetes
- Heart disease
- Stroke

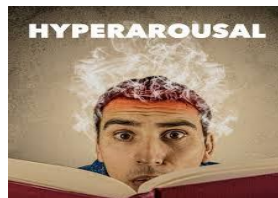
Dunckley (2015) notes that through the eyes, brain, and body, excessive consumption of media (in this case pornography) sends unnatural and overstimulating messages to the nervous system which trigger and promote the fight-or-flight as noted earlier.

In a very bravely candid and enlightening interview cited in Kardaras (2016), **Dr. Andrew Doan**, who received his M.D. at Johns Hopkins and also earned a Ph.D. in neuroscience, described his own extreme media addiction and subsequent hyperarousal symptoms while he was in medical school over a decade and a half ago, *"I had pain from my clicking finger all the way up to my forearm. And my cortisol levels were shot - through my hypothalamus-adrenal-pituitary axis (HPA), so I was getting fat because I had all of this cortisol floating around. I didn't exercise, so I was retaining more body fat. And then finally my HPA axis was all dysregulated so I was more prone to infection - I had pimples all over my face, I had stretch marks beginning. And then, finally, I got an infection in my armpit!"*

So, in addition to the carpal tunnel, I had this armpit infection that was streaking down my arm. And on top of that, because my blood pressure was going up because of the gaming adrenaline rush - my blood pressure was high, my cholesterol was high. And because my blood pressure was high, and I was sitting all of the time, I had hemorrhoids the size of walnuts. - I mean, literally! I was a young man - I was pissed off. Why do I have hemorrhoids like some pregnant women do? We're talking about bloody, painful hemorrhoids...So I'm convinced that if people are addicted to this thing, it's going to ruin their lives. It almost ruined mine - and it almost ruined my son and almost destroyed his confidence and his opportunities." The reader is encouraged to read Dr. Doan's excellent book, *Hooked on Games*, for more detail on the devastating impact that media addiction had on his life and how he overcame it.

Kardaras (2016) notes that the overstimulation of the glowing lights and flashing lights of screens (and by association, pornography viewing – emphasis mine) can damage **myelin** in neural pathways. Myelination is an important process that acts to insulate nerve cell axons to increase the speed at which information travels from one nerve cell to another. The myelinated axon can be likened to an electrical wire with insulating material around it. As Kardaras (2016) points out, myelin is extremely vulnerable to disruption and specifically oligodendrocytes, the brain cells that produce cholesterol for proper myelination can be damaged by trauma, environmental stressors, toxins, certain drugs, and overstimulation. He adds that when myelin is destroyed by overstimulation during key developmental periods, problems such as our ability to focus, our ability to feel empathy, and or ability to discern reality can all be negatively affected. It has been conjectured that myelination abnormalities can, in part, drive certain brain neuropsychiatric disorders that impact our entire life cycle from ADHD and autism in infants and children, to schizophrenia and drug addiction in teens and young adults, and to Alzheimer's in seniors (Kardaras, 2016).

The **Impact of Chronic Hyperarousal** reported by Dunckley (2015) is summarized below:



- **Blood Flow Shifts:** When a person is under stress, blood flow to the brain is shunted away from the higher regions of the brain, i.e., the cortex, and directed to the more primitive parts of the brain, i.e., the limbic or old brain, in an effort to promote survival. As Dunckley (2105) notes, when addiction of any kind occurs in adolescence, there is a tendency to stunt the development of the frontal lobe which, in particular, is responsible for decision-making, organization, planning, attention, impulse-control, task completion, emotional regulation, and inhibition among others. She posits that if screen time (and by association, pornography viewing – emphasis mine) indeed induces a stress response and activates the addiction pathways, it very well could affect brain development in the long term by decreasing blood flow to the cortex and frontal lobe (Dunckley, 2015).
- **Elevated Cortisol:** As noted by Dunckley (2015), studies indicate that electronic screen activity (and by association, pornography viewing – emphasis mine) impacts the regulation of cortisol (Wallenius, 2010). Although adrenaline is the primary hormone that is secreted in an acute

stress reaction, in chronic stress reactions, the dominant hormone released is cortisol. While cortisol helps to protect and promote survival in the short term, elevated levels of cortisol over longer periods of time actually become quite harmful. As noted earlier, chronically elevated cortisol is associated with obesity, diabetes, hormone imbalance, metabolic syndrome, and high blood pressure (Pervanidou et al., 2011). When we are under significant stress and when the body then needs access to fuel, cortisol allows for increased blood sugar to be available by counteracting insulin. This is not a problem in the short term but if it continues for longer periods of time, it can promote weight gain specifically concentrated in the abdominal area and cause problems with insulin regulation. In addition, elevated cortisol dysregulates the production of other hormones to include the thyroid and reproductive hormones and over extended periods of time excessive cortisol actually damages the brain (Nepomnaschy et al., 2004; Chrousos, 2012).

- Oxidative Stress: Dunckley (2015) states that chronic stress, be it electronically triggered or otherwise, ends up putting damaging stress on the very system that fights stress. On a molecular level, all cellular reactions in the body produce free radicals and these free radicals are unstable as they have unpaired electrons that seek to grab another electron in an effort to become stable. When a particular cell is healthy, the free radicals are cleared out or scavenged by sufficient amounts of antioxidants and appropriate balance is preserved. However, when the cell's natural defenses are overwhelmed due to excessive stress, the antioxidants or scavengers are depleted, and oxidative stress or excessive free radicals develop. The free radicals and the unstable molecules which contain them build up and will then steal electrons from their own tissue. Proximal fats, proteins, and DNA are particularly vulnerable to being damaged. Over the course of time, this progresses to cause inflammation, tissue damage, and poor efficiency which lead to increasing degradation of the cell's ability to deal with acute and prolonged stress. The brain is especially susceptible to oxidative stress. First, oxidative stress can promote disruption of the blood-brain barrier which causes it to be more vulnerable to toxins. Second, oxidative stress degrades the myelin or fatty sheaths that insulate brain cells which promotes aberrant firing networks. Finally, the developing brain is particularly vulnerable to oxidative stress, much more so than the adult brain, as it is highly dynamic with increased energy needs (Dunckley, 2015).
- Lack of myelination: Kardaras (2016) notes that the overstimulation of the glowing lights and flashing lights of screens can damage **myelin** in neural pathways. Myelination is an important process that acts to insulate nerve cell axons to increase the speed at which information travels from one nerve cell to another. The myelinated axon can be likened to an electrical wire with insulating material around it. As Kardaras (2016) points out, myelin is extremely vulnerable to disruption and specifically oligodendrocytes, the brain cells that produce cholesterol for proper myelination can be damaged by trauma, environmental stressors, toxins, certain drugs, and overstimulation. He adds that when myelin is destroyed by overstimulation during key developmental periods, problems such as our ability to focus, our ability to feel empathy, and our ability to discern reality can all be negatively affected. It has been conjectured that myelination abnormalities can, in part, drive certain brain neuropsychiatric disorders that impact our entire life cycle from ADHD and autism in infants and children, to schizophrenia and drug addiction in teens and young adults, and to Alzheimer's in seniors (Kardaras, 2016).

The Impact of Pornography on Emotional Health:



Cyber void is so full of amazing emptiness that makes us feel fulfilled.”

-- Munia Khan

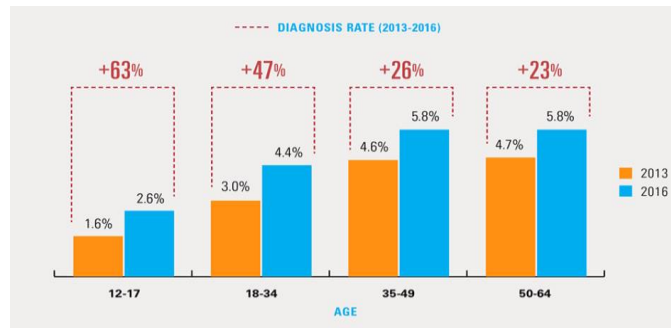
Turner (2017) eloquently writes of his own struggle with depression secondary to media overconsumption, *“My relationship with the Internet was not alleviating feelings of loneliness; it was amplifying my loneliness, bringing me to a state of frustrated depression. I felt boxed in, unable to breathe, trapped in an inescapable thought bubble of my own f*ed up, addictive desires. I conditioned myself to need constant stimulation. I couldn’t read, talk, study, or play the piano – all things that I love – because it all seemed too slow, too one-note...I was always tired, yet always racing in a mad frenzy. I couldn’t focus. I was anxious. I was unable to engage in solitude. My thoughts were a jumble.”*

We are, on a surface level, the most connected society that has ever walked the planet. Each second, we send over 7,500 tweets, 1,394 Instagram photos, and over two million emails and view over 119,000 YouTube videos (Internet Live Stats, website, www.internetlivestats.com). Americans send 69,000 texts a second, which translates to over six billion texts sent out in the US daily. Paradoxically, the more **connected** we think we are with the façade of the Internet, the more **disconnected** and depressed we actually become. As Johann Hari (2015) said in a Ted Talk, “We are the most disconnected society that has ever been, surely.” Dr. Jean Twenge, a San Diego State University professor and the author of her compelling book, *Generation Me*, analyzed the data from approximately six million teens and adults in the US and concluded that self-reported depression has increased markedly since the 1980s. She found that teens, in particular, are 74 percent more likely to exhibit difficulty sleeping and are twice more likely to seek help from a mental health professional (Twenge, 2014). Farchian (2016) reported that people are ten times more likely to suffer from depression today than in post-WWII, with women and teenage girls more than doubly prone toward depression than men.

A 2018 study conducted by Blue Cross and Blue Shield revealed that that the highest rate of growth in depression has occurred in the youngest and the most digitally connected age bracket (see chart below). “The most dramatic rise in major depression diagnosis is among those under 35 years of age. Between 2013 and 2016 diagnoses increased 63 percent among adolescents and 47 percent among millennials. Gender differences among millennials were similar but among adolescents there was a 65 percent increase for girls compared to a 47 percent rise for boys” (Blue Cross and Blue Shield, 2018).

Pornography Addiction – and the Demise of Mind, Body, and Soul

Jeffrey E. Hansen, Ph.D.



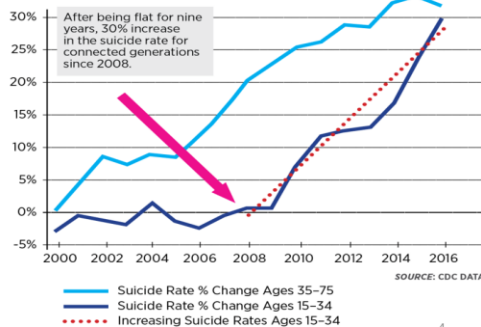
The CDC recently reported that the suicide rate among the “Most Digitally Connected Generations” has increased at an alarming rate in the last 10 years after being flat for nine years. This 30% increase in suicide correlates with the advent of the smart phone (see graph below).



US Suicide Statistics

After being flat for a decade, the age brackets from 15-34 fared much worse beginning around 2008.

U.S. Suicide Rates % Change: Comparison of Most Digitally Connected Generations vs. Less Connected 2000–2016.



Shared with permission – Peter Ryan, CAPT, USN (R)

The connection between general media consumption to include gaming and social media and depression is well-established.

Kardaras (2016) cites the following concerning statistics:

- A 1998 study at Carnegie Mellon University found that Web use over a two-year period was correlated with increased depression, feelings of loneliness, and a loss of “real-world” friends.
- A 2012 Missouri State University study of 216 students revealed that 30 percent of Internet users showed signs of depression and that the depressed kids were more intense Web users.
- A 2014 study looked at 2,293 seventh-graders and found that Internet addiction led to increased depression, hostility, and anxiety.

- A 2014 study conducted in Pakistan with 300 graduate students found a positive correlation between Internet addiction and depression and anxiety.
- A 2006 Korean study involving 1,573 high school students found a correlation with Internet addiction, depression, and thoughts of suicide.

Recently, the term **Facebook Depression** has emerged – namely, the more “friends” one has on Facebook, the higher the likelihood of depressive symptoms (Kardaras, 2016). Kardaras (2016) notes that this is a double whammy in that the more time spent on social media and the more texting that an individual engages in, the higher the probability of both depression and a media addiction as well, which in turn, only increases a sense of isolation and disconnection from healthy living. Kardaras (2016) cites a Case Western Reserve University School of Medicine study that “hypernetworkers” were prone toward (Pederson, 2015):

- Higher rates of depression
- Increase substance abuse
- Poor sleep
- Greater reported stress
- Poor academic performance
- Higher rates of suicide
- 69 percent more likely to have sex
- 60 percent more likely to report four or more sexual partners
- 84 percent more likely to have used illegal drugs
- 94 percent more likely to have been in a physical fight

Dr. David Skinner, a sexual addiction expert, wrote about a non-peer-reviewed online study in his blog comprised of 450 subjects, mostly men, and found that individuals who viewed pornography three to five times per week and/or daily scored much higher on a standard measurement for depression and included it as a part of a free online survey found at growthclimate.com. The individuals who viewed pornography three to five times per day scored on average nearly 15 on the depression survey and those who viewed it daily scored on average 21 compared to the general population score of 6.5.

As noted in MetalHelp.net (2016), researchers have concluded that compulsive and at-risk cybersex users experience guilt, depression, and anxiety. The writers conclude that this may both result from pornography usage and perpetuate further behavior.

Weaver et al. (2011) found that adult users of pornographic material reported greater depressive symptoms, poorer quality of life, more mental- and physical-health diminished days, and lower health status than compared to nonusers.

Dr. Gail Dines, perhaps the leading advocate against the impact of the pornography industry in the world, is President and CEO of Culture Reframed, and Professor Emerita of Sociology and Women's Studies Wheelock College, Boston. Having researched and written about the porn industry for over twenty years, Dr. Dines is internationally acclaimed as the leading expert on how pornography shapes our identities, culture, and sexuality. She is a consultant to government agencies in the US and abroad, including the UK, Norway, Iceland, and Canada. In 2008, she co-founded the nonprofit Stop Porn Culture. Her website holds a wealth of information and specifically summarizes the impact of pornography on children and teens. In her extensive review of the literature, Dr. Dines notes on her

website (<https://www.culturereframed.org/>) that the research varies in its ability to show if pornography directly causes mental health issues and states that conditions are correlational (existed prior to viewing), or a combination of both. Nonetheless, she concluded that studies indicate that porn users experience:

- higher incidence of depressive symptoms
- lower degrees of social integration
- decreased emotional bonding with caregivers
- increased conduct problems
- higher levels of delinquent behavior

Doornwaard et al. (2016) conducted a study comprised of 331 Dutch boys and determined that compulsive pornography consumption was correlated with higher levels of depressive feelings and lower self-esteem.

Owens et al. (2012) and Sun et al. (2016) determined that pornography impacts self-image, specifically regarding feelings of physical inferiority; for girls, this relates to feelings of physical inferiority, and for boys, fear of not measuring up, with concerns about both virility and performance.

The Impact of Pornography on Sexual Aggression and Violence:



In his book, *How Pornography Harms*, Dr. Foubert (2017) notes that there are over **100 studies** which show that pornography is correlated with and is the cause of a **wide range of violent behaviors** and about **50 studies** that show a strong relationship between pornography and **sexual violence** (Peter et al., 2016 & Malamuth, 2000). Kingston et al. (2009) write that researchers have also found that pornography use specifically increases the likelihood that a man will commit acts of sexual violence against women, especially if the man in question has additional risk factors such as impulsivity and if the pornography use is frequent.

Cited in Foubert (2017), Dr. Mary Ann Layden found evidence of increased violent acts towards women by males who consume pornography. She comments that if men are hostile in attitude toward women, are promiscuous sexually, and are frequent consumers of pornography, they are much more prone to be both physically and sexually aggressive toward women. She summarizes her findings by stating that pornography teaches, gives permission, and eventually triggers attitudes and behaviors that are destructive to both the user and to others. The damage is evident regardless of sex or of age. In her own words, "Pornography is a widely influential and very **toxic teacher**" (Layden, 2010).

Donevan and Mattebo (2017) conducted mixed-gender Swedish study of 946 students and found that frequent users who watched hard core and violent pornography to a higher extent were more likely to have engaged in a wider range of sexual activities, to have fantasized about trying sexual activities seen in hard core pornography, and to have showed signs of sexual preoccupation and problematic pornography use.

Owens et al. (2012) and Sun et al. (2016) reported that research findings consistently link the viewing of violent pornography to increased tendencies for sexually aggressive behavior

Stanley et al. (2016) reported that there is a clear association between regular viewing of online pornography and perpetration of sexual coercion and abuse by boys.

Stanley et al. (2016) found that both regularly watching pornography and sending or receiving sexual images or messages were associated with increased probability of being a perpetrator of sexual coercion.

Dr. Walther DeKeseredy (2016) reported that among divorce people he studied, 30% stated that their husband's pornography use was integral to the sexual abuse they suffered in their marriage.

Wright et al. (2016) conducted an excellent and exhaustive meta-analysis of 22 studies from 7 different countries and concluded, *"The accumulated data leave little doubt that, on the average, individuals who consume pornography more frequently are more likely to hold attitudes conducive to sexual aggression and engage in actual acts of sexual aggression than individuals who do not consume pornography or who consume pornography less frequently."*

The **Catholic News Agency** reported shocking interviews of serial killers that pornography can lead to the ultimate crime: Murder. They are summarized below and are horrific to read.



Gary Bishop, Serial Killer

Gary Bishop, a convicted homosexual pedophile, murdered five young boys in Salt Lake City, Utah, in order to conceal his sexual abuse of them. After his conviction he wrote a letter which revealed the fact that pornography and his addiction to it was the root cause of his murders. It said:

"Pornography was a determining factor in my downfall. Somehow, I became sexually attracted to young boys and I would fantasize about them naked. Certain bookstores offered sex education photographs or art books which occasionally contained pictures of nude boys. I purchased such books and used them to enhance my masturbatory fantasies.

"But it wasn't enough. I desired more sexually arousing pictures, so I enticed boys to let me take pictures of them naked. From adult magazines, I located companies specializing in kiddie porn."

"Such material would temporarily satisfy my cravings, but soon I would need pictures more explicit and revealing ... Finding and procuring sexually arousing materials became an obsession.

For me, seeing pornography was like lighting a fire on a stick of dynamite. I became stimulated and had to gratify my urges or explode (Cline, 1999).

Ted Bundy, Serial Killer

Serial killer Ted Bundy killed at least 28 young women and girls. He was interviewed by Dr. James Dobson, a well-known psychologist, the day before he was executed Bundy told Dobson, *"I encountered soft core porn in the local drug store (and later) came across pornographic books of a harder nature."*

Dr. Dobson asked whether these included violence. Bundy answered, *"Yes, and this is something I want to emphasize as the most damaging kinds of pornography."*

Dobson asked if "it fulfilled your fantasies." Bundy said:

"In the beginning it fuels this kind of thought process. Then at a certain time, it's instrumental in what I would say crystallizing it ... At that point ... I was on the verge of acting out these kinds of thoughts ... and it happened in stages ... my experience with pornography that deals on a violent level with sexuality is that once you become addicted ... I would keep looking for more explicit, more graphic kinds of materials ... until you reach the point where the pornography only goes so far. You reach that jumping-off point where you begin to wonder if maybe actually doing it will give you that which is beyond just reading about it or looking at it. ..."

Bundy continues:

"The influence of violent pornography-which is an indispensable link in the chain of behavior ... the assaults, the murders and what have you ... I know that I could not control it ... that these barriers that I had learned as a child were not enough to hold me back with respect to seeking out and harming somebody."

Bundy then says:

"I think people need to recognize that those of us who have been influenced by ... pornographic violence-are not some kind of inherent monsters. We are your sons and we are your husbands. ... Any pornography can reach out and snatch a kid out of any house to-day."

"I've lived in prison for a long time ... and I've met a lot of men who were motivated to commit violence just like me. And without exception every one of them was deeply involved in pornography -- deeply influenced by an addiction. There is no question about it. The FBI's own study shows that the most common interest among serial killers is pornography." (Dobson interview, 1989).

Jeffrey Dahmer, Serial Killer

Jeffrey Dahmer drugged and killed 17 men and boys. As related in a confession to the United States Federal Bureau of Investigation, Dahmer reported that he often had sex with the body. When asked what motivated him, he told the FBI in 1992, *"heavy drinking, pornography, and masturbation"* -- admitting while in the U.S. Army he found graphic porn in Germany and spent thousands of dollars on it. He admitted to killing as often as once a week. (APB News, 2000).

The Impact of Pornography on Sexuality:



Listed below are some of impacts that pornography has on sexuality.

Inability to achieve orgasm during sex: Gary Wilson (2017) in *Your Brain on Porn*, one of the best books on the neurological impact of pornography addiction, writes that years of porn use can cause a variety of sexual symptoms which lie on a spectrum. Often porn users report that delayed ejaculation or inability to orgasm (anorgasmia) was a prelude to full blown erectile dysfunction.

Citing one 29 year-old young man from Gary Wilson's forum stated, *"17 years of masturbation and 12 years of escalating to extreme/fetish porn. I started to lose interest in real sex. The buildup and release from porn became stronger than it was from sex. Porn offers unlimited variety. I could choose what I wanted to see in the moment. My delayed ejaculation during sex became so bad that sometimes I could not orgasm at all. This killed my last desire to have sex"* (Wilson, 2017, p. 41).

Unreliable erections during sexual encounters: Between 1948 and 2002, the historical rates for ED in men under 40 were consistently around **2% to 3%** and did not go up very much until age 40. (de Boer, B. et al. (2004). However, as noted by Wilson (2017), at least six studies have found ED rates of about **14% to 33%** in young men, which constitutes a staggering 1000% increase in just the last 15 years (Park, 2016). In fact, adolescents are suffering disproportionately as noted by in a Canadian study which showed that problems in sexual functioning are sadly higher in adolescent males than in adult males. In a two-year period 78.6% of **males aged 16-21** reported a sexual problem during partnered sexual activity (O'Sullivan et. al., 2016):

- Erectile dysfunction - 45%
- Low sexual desire - 46%
- Difficulty climaxing – 24%

As noted by Steinberg et al. (2013), Dopamine is odd in that it shoots up when something is better than expected (violates expectations), but only drops when expectations are not met. Wilson (2017) adds, *"With sex, it's nearly impossible to match internet porn's level of surprise, variety, and novelty. Thus, once a man thoroughly conditions himself to porn, sex may not meet his unconscious expectations. Unmet expectations produce a drop in dopamine – and erections. (A steady stream of dopamine surges is imperative for sustaining arousal and erections). Whether 25 or 55, the disparity between real sex and masturbating to Internet porn is a key factor in porn-induced sexual dysfunctions"* (Wilson, 2017, p 84-85).

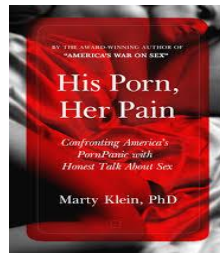
Scary and alarming porn fetish tastes: Gary Wilson (2017) writes that once upon a time, men could trust their penises to tell them everything they needed to know about their sexual preferences and orientation. However, our brains are very plastic (or able to change with experience). As such, our

brains change with experience with or without our conscious participation. Wilson notes, that as a function of porn involvement, porn users often move from one genre to another and will often arrive in places that they find very disturbing and/or confusing. As a result, a previously defined heterosexual boy might ultimately find himself enjoying homosexual pornography and then begin to question his sexuality. Additionally, many men end up viewing child pornography as they have habituated to everything else. As has been said, “I did it all and then got bored (habituated) with it all and thus (child porn) was the final taboo that excited me.

Another young man cited in Wilson (2017), stated, *“I wasn’t interested in any weird stuff before I started to watch porn. Just real girls of my age. Now, I like BBB, BBW, MILF, Tranny, Crossdresser, Fat, Skinny, and Teen.”*

Downing et al. (2016) conducted a study that found that it is now quite common to find men who view porn that is inconsistent with their sexuality. Specifically, they reported that heterosexual-identified men in the study reported viewing porn containing male same-sex behavior (20.7%) and gay-identified men reported viewing heterosexual behavior in porn (55%). Wilson (2017) notes that it is very sad that porn users are ignorant of how common it is to escalate often leaving porn users in the end, feeling very anxious, demoralized, and hopeless. He adds that it can be especially distressing to escalate through **porn fetishes** that ultimately cast doubt on one’s sexual orientation.

The Impact of Pornography on Women and How They are Viewed:



Dr. Foubert (2017) writes that the root of many acts of violence against women, to include sexual violence, lies in a process in which a person sees another person as more of an object than a flesh-and-blood human being. In an effort to study this process, a research team from the Netherlands investigated the relationship between adolescents viewing pornography and whether or not they ended up believing that women were more objects than real people. The results revealed that the more that young males and females viewed porn, the more they took on a mindset that females indeed are objects (Peter et al., 2007; 2009).

In a review of previous studies on the objectification of women, Klassen and Peter (2015) noted that Internet pornography promotes gender inequality between the sexes because it treats women as sex objects, subordinates them, and depicts rape and violence against them. They conducted a content analysis of 400 popular pornographic Internet videos from the most visited pornographic Web sites and concluded that objectification was depicted more often for women than for men and men were shown as dominant and women as submissive.

Instead of women being seen as lovely and beautiful human beings, they are now far too often being devalued to nothing more than an object to satisfy basic animal desires that are triggered and then

played out online. Men ask of their partners, and I use that term loosely, to play out their fantasies as spawned by what they have previously seen. There is little to no interest in satisfying the desires of their partners and leaving them happy and fulfilled. Sex is, hence, far too dopamine-driven, with too little **oxytocin**. Oxytocin has been called the “**love hormone**” that also acts as a powerful neurotransmitter in the brain. The body releases oxytocin during physical touch and skin-to-skin contact such as hugging, cuddling, kissing, and other sexual behaviors. Oxytocin brings on feelings of calmness, security, and contentment—feelings often associated with pair bonding. Oxytocin activates brain areas associated with pleasure and reward, likely because the body releases dopamine in coordination with oxytocin as the result of physical touch. Oxytocin also plays a role in pregnancy, nursing, and mother-infant attachment (The neurobiology of romantic love, 2018).

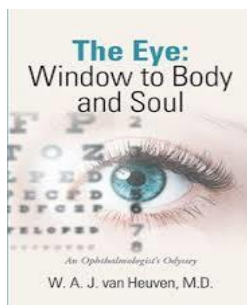


Chemical structure of Oxytocin

The Impact of Pornography on the Soul:

“The eye is the lamp of the body. So, if your eye is healthy,
your whole body will be full of light, but if your eye is bad,
your whole body will be full of darkness.
If then the light in you is darkness, how great is the darkness!”

- Matthew 6:22-23



Although we stated earlier in this paper, I do not ascribe to **blaming and shaming** and am not of the belief that most people fall into addictive patterns primarily as a function of moral failure, That said, I do believe that the pursuit into pornography most inevitably leads us down a path that precipitates the **demise of the soul**.

Anyone in the Jewish tradition will remember that a core belief in Judaism is that man and woman are created in the image of God and deserve to be treated with respect and dignity. Judaism sanctions,

indeed hallows, the positive enjoyment of sexuality within the context of an overall relationship between husband and wife. Pornography represents the very antithesis of that tradition. It makes people into objects by reducing sex to an impersonal, mechanical activity. It denies the image of God within us.

Pastor Driscoll (1989) notes that God tells us that people tend to satisfy their thirst not by drinking from His streams of living water but instead by drinking from man-made toilets. As a result, we lose what could have brought us refreshment to a poison that ultimately blackens us.

Aside from the question of sin, the Catechism of the Catholic Church notes that there is another closely allied principle, which we call "Morality." We first observe that there is a wide belief that "Deep within his conscience man discovers a law which he has not laid upon himself but which he must obey. Its voice calls him to love to do good and avoid evil. It is sometimes called natural law and allows him or her to recognize the moral quality of any act whether it is good or bad. Conscience and the ability to seek good and avoid evil is inscribed in his heart by God" (Catechism of the Catholic Church, 1992). When we go against this principal, we believe that we degrade that voice and lose a higher guidance that serves to protect us. In so doing, the decent to darkness accelerates to the point that those who love us, and we as well, no longer know the person we have become.



Dr. Dindinger (2014) writes about hypofrontality as discussed earlier in this paper, "Many who reach this stage find that they are seeking and engaging in pornography even when they do not want to. Individuals who are trying to quit viewing and engaging in pornography often report that they are unable to stop themselves and feel like they are on autopilot. In some ways, their ability to choose is gone. When these areas of the brain are shut down, other damaging activities occur...Morals begin to change...In these situations people tend to change their moral structure to include pornography as an acceptable behavior...The end result is that all actions that support the view that pornography is bad are then judged to be irrelevant and wrong...Many people turn away from monogamous relationships, marriage, religious activities, family, "judgmental friends," and other forms of pleasure in favor of pornography (Dindinger, 2014, p 7-8).

Part 4 – The Way Out:

The good news is that there is a way out if you want it bad enough and if you are willing to do the hard work.

Let's start with what does not work. Most important is **shame**. Telling yourself or another person who is struggling with pornography addiction that you or they are a moral failure or a bad person, will not help you or them heal and, in fact, it can very often make matters far worse. I have seen porn addicted people in my practice who have attempted suicide by hanging and/or by handguns because they were so wracked with guilt and shame and they tragically felt that the only escape was death.

Please know that by reading this paper or any other good reference on behavioral addiction, you have already taken a great first step. As you are now coming to understand how you can be predisposed to addiction by your childhood experiences and how your brain and your central nervous system are being affected by your addiction, you can begin to have a sense of control over your addiction. Barta (2018) makes the very important point that no longer is the addiction an outside force that is happening to you as you can now understand that your addiction has been used to control painful feelings and/or disconnection through dissociated actions and behaviors. You can, therefore, begin to let go of the shame and embrace self-compassion and accept total responsibility for your healing.

Strategy One – Get Connected to Healthy Living:

So, as we look toward solutions to getting our pornography consumption under control, we must have a template for what healthy living looks like. One of the most influential books that I (Jeff) have found to address this issue is the groundbreaking book, *Lost Connections* by Johann Hari (2018). In this book award-winning journalist and critical thinker, Johann Hari, who suffered from depression since he was a child, set out on a three-year journey around the world to seek answers to his own depression. He talked with psychiatrists, epidemiologists, neurologists, neuroscientists, social scientists, and many other experts in their fields of study around the globe and explored different cultures and how they fared with these issues. In addition, he conducted a comprehensive review of the literature. He concluded that much of what we have been led to believe about the genesis and treatment of depression and anxiety is off the mark in many ways. He determined that in many cases depression and anxiety are the result of crucial and growing problems with the way we are living our lives. He discovered that there are nine underlying causes of these problem which are summarized as follows (Hari, 2018):

Cause One - Disconnection from Meaningful Work:



Hari (2018) noted that the polling company Gallup conducted the most comprehensive study to date on work satisfaction/dissatisfaction between 2011 and 2012 to determine how people across the world felt about their work. Of the millions of workers across 142 countries, Gallup determined that only 13 percent reported that they were “engaged” with their work (Davies, 2016). On the other hand, 63 percent were “not engaged” - meaning no passion in one’s work. Finally, 24 percent were “actively disengaged” - which translates to acting-out their unhappiness. In sum, twice as many people hate their jobs as love their jobs. In an effort to better understand high rates of depression and suicide in civil servants, investigators determined that a **lack of control** and little connection between **effort** and **reward** were highly predictive (Marmot et al., 2002).

The above study suggests that as we wean ourselves from excessive media use, we need to develop a sense of empowerment, purpose, and accomplishment in what we do. If we are unhappy with our job, we can try to make changes to make it better. If that doesn’t work, we can consider looking elsewhere. I see far too many unfulfilled people in my practice come home from work and bathe themselves in social media and/or pornography to ease the pain. This is no more evident than in the military where the demands are particularly stressful.

Cause Two – Disconnection from Meaningful People:

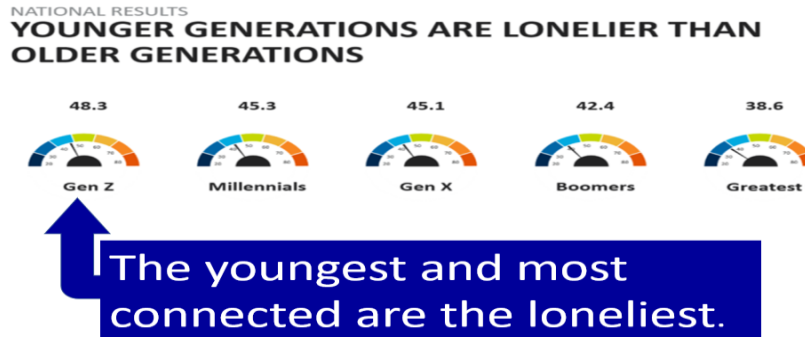


Dr. John Cacioppo (2006, 2008, 2010), a neuroscience researcher, studied the impact that loneliness has on health. He and his colleagues determined that loneliness causes **cortisol** levels to go through the roof – as much as that caused by some of the most disturbing things that can ever happen in your life. As Hari (2018) summarizes Cacioppo’s research, “Becoming acutely lonely, the experiment(s) found, was as stressful as experiencing a physical attack.” Another researcher, Lisa Bergman, followed both isolated and highly connected people over nine years and found that isolated people were two to three times more likely to die during lonely periods and that, specifically, almost everything during lonely periods becomes more fatal for lonely people to include heart disease, cancer, and respiratory problems (Pinker, 2015). In short, loneliness can be deadly (Monbiot, 2014). In addition, research conducted by Cacioppo et al. (2010) conducted a five-year longitudinal study which showed that loneliness is not merely the result of depression but indeed leads to depression as well. In this study, he found that on a measure of 0 percent loneliness to 100 percent loneliness that moving from 50 percent lonely to just 65 percent lonely increases your chances of becoming depressed by eight times. He concluded that loneliness is causing a significant amount of depression and anxiety in our society. In a Ted Talk presentation, Cacioppo (2013) reported a rather shocking meta-analysis study of over 100,000 participants which found increased risks of dying early due to the following:

- **Air pollution:** 5% increased risk of dying early
- **Obesity:** 20% risk of dying early
- **Alcoholism:** 30% risk of dying early
- **Loneliness:** 45% risk of dying early

A 2018 study conducted by Cigna (see diagram below) revealed that compared to older generations, the youngest is the loneliest generation ever (Cigna, 2018).

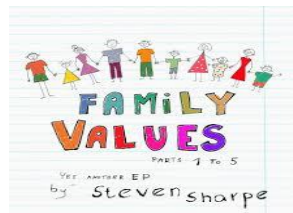
2018 CIGNA Study



Shared with permission – Peter Ryan, CAPT, USN (R)

The implications of this research are clear; specifically, it is to our benefit that we stop isolating ourselves and connect in positive and fulfilling family and social relationships.

Cause Three – Disconnection from Meaningful Values:



Hari (2018) notes that an American psychologist Tim Kasser has spent much of his professional career investigating the impact that values have on our emotional and physical health. He specifically researched what philosophers had been suggesting for thousands of years - that if you overvalue money and possessions or if you think about life mainly in terms of how you look to other people, you will be unhappy (Belk, 1983). Kasser's research specifically determined that the more materialistic we are, the more likely we are to score higher on measures of depression. In his studies, materialistic people were having a tougher time with life in general. They tended to be sicker and angrier. "Something about a strong desire for materialistic pursuits," Kasser wrote, "actually affected the participants' day-to-day-lives" (Kasser, 2002). Hari (2018) notes that materialistic values which tell us to spend our way to happiness look like real values, yet they don't give us what we need from values, namely, a path toward a satisfying and fulfilled life and instead fill us with "**psychological toxins**" which can distort our minds. In my family therapy sessions with media and porn addicted teens and young adults, I ask the family to define, evaluate, and clarify their family values and additionally determine what their family name stands for. In addition, I sometimes give them the assignment of developing a family **Coat of Arms**. Sadly, there is far too little discussion about family and personal values these days. Good values are like a compass that helps keep us on a "true north" path toward healthy living.

Cause Four – Disconnection from Childhood Trauma:

As noted earlier in this paper, childhood trauma is a leading reason why many turn to media and/or pornography in an effort to quell that pain. As such, unless that trauma is adequately addressed and resolved, efforts to stop our addictions can be much more difficult if not impossible. Moreover, many individuals with unresolved trauma may be successful in stopping one addiction but will only end up switching it out for another. As Johann Hari (2018) put it, “There’s a house fire inside many of us.”

Cause Five – Disconnection from Status and Respect:

Robert Sapolsky’s baboon research revealed that baboons with the lowest status must compulsively show that they know that they are defeated, and they do this by making subordinate gestures – lowering their heads, crawling on their bellies, etc. Moreover, when a baboon is looking and acting this way and when no one is showing him any respect, he will look a lot like a depressed person in that he will keep his head down, he will not want to move, he will lose his appetite and all energy, and when someone comes near him, he will pull away (Sapolsky, 2002). Sapolsky subsequently determined that depressed humans are flooded with the same stress hormone, namely cortisol, that low-ranking baboons experience and that the same constellation of changes in the brain and pituitary and adrenal glands also occur (Sapolsky, 1992).

As noted earlier in this paper, spending much of the day in media does not afford us the necessary time and experience to build real 3D relationships nor do we develop competence in a world that will ask much of us and, as a result, we will most assuredly lose “status and respect,” not only from others but we will also lose self-respect and self-confidence. We need to ensure that we are unplugging in order to develop those necessary skills. As Twenge (2006) in her book, *Generation Me*, astutely pointed out, self-esteem is not based on air, but on mastery and real-world competence.

Cause Six: Disconnection from the Natural World:

Our children no longer learn how to read
the great Book of Nature
From their own direct experience or how to interact creatively
with the seasonal transformations of the planet.
They seldom learn where their water comes from or where it goes.
We no longer coordinate our human celebration with
the great liturgy of the heavens.

--Wendell Berry



Chilean primatologist, Isabel Behncke, has spent much of her professional career studying the behavior of chimpanzees and Bonobos in both the wild and in captivity. She noted that Bonobos in the wild can

become sad or depressed but there is a limit to how far they will go. However, in captivity Bonobos often become so deeply depressed to the point that they will scratch themselves until they bleed and can develop tics or start to rock obsessively whereas in their natural habitat, these behaviors are never observed (interview with Isabel Behncke cited in Hari, 2018). Elephants in captivity will often grind their tusks- which is a source of pride – against the walls to the point that they become stumps and some elephants in captivity are so traumatized that they will actually sleep upright for years; all behaviors that are never seen in captivity (Sutherland, 2014). Isabel Behncke postulated that, similar to the animal world, we too, are more prone toward depression when we starve ourselves from connection to the natural world (interview with Isabel Behncke cited in Hari, 2018). Berman (2012) conducted a study that asked city dwellers to simply take walks in nature and then tested their mood and concentration and predictably found that everyone reported feeling better and noted improved concentration and, most interesting, previously depressed people reported five times greater improvement than non-depressed people. The scientific evidence is very clear that exercise indeed improves depression and anxiety (Strohle, 2009); however, getting out and exercising out-of-doors has even better rewards. For example, Gilbert (2009) reported that both people who run on treadmills in the gym and people who run in nature show a reduction in depression; however, this is significantly higher for people who run in nature.

Richard Louv who coined the term **Nature Deficit Disorder** wrote that humans are hard-wired for a genuine nature connection. Louv believes that the exponential increase in emotional and psychological problems in kids today are all related to an erosion of their connection with nature and immersion into the digital world (Louv, 2005). We need to ensure that we are unplugging and going outside to bond with nature, play, and reap the benefits of exercise. Doing this in a social context is even better.

Cause Seven – Disconnection from a Hopeful and Secure Future:



Hari (2018) notes that as Native Americans were stripped of their identities, they lost their connection to the future, they became increasingly depressed, and then often resorted to alcohol abuse which resulted in addiction. I would conjecture that as we lose connection with our true identities, not only within our families, but within our culture, we will further retreat to media in hopes of cultivating an identity. Sadly, the cyber-world cannot fill this need and only perpetuates a sense of disconnection, loneliness, and feelings of despair about a probable insecure future. We need to ensure that we have hope for what lies ahead and that life has purpose and meaning. This can only happen when living a connected life.

Cause Eight – Disconnection from Faith (emphasis mine):



“Man is not destroyed by suffering; he is destroyed by suffering without meaning”
--Victor Frankl

Although not specifically mentioned by Hari (2018), I believe that faith can be fundamentally important. Observational studies suggest that people who have regular spiritual practices tend to live longer (Strawbridge et al., 1997). Another research study investigated 1700 older adults and found that those who attended church were half as likely to have elevated levels of IL-6interleukin (IL)-6 which has been associated with an increased incidence of disease. These authors concluded that religious commitment may improve stress control by affording better coping mechanisms, richer social support, and the strength of personal values and worldview (Koenig et al., 1997). Spirituality is an essential part of the “existential domain” as measured in quality-of-life scores. Positive reports on those measures, i.e., a meaningful personal existence, fulfillment of life goals, and a feeling that life to that point had been worthwhile, correlate with a good quality of life for patients with advanced disease (Cohen et al., 1995).

It has been my observation in almost 35 years of practice that individuals who have some type of meaningful faith tend to be more resilient as well as more able to see the big picture when facing struggles or crises. The reader is encouraged to read Dr. Andy Doan’s brave and candid book, *Hooked on Games*, which details how faith saved him from devastating media addiction that almost destroyed his medical career, his life, and his family.

Strategy Two – Make a U-Turn on the Superhighway

Matt Fradd (2017) writes that there are essential elements to making a U-turn on what he calls the “superhighway” to viewing porn in any one instance. First, referencing Dr. Kevin Skinner’s (2005) excellent book, *Treating Pornography Addiction*, we must be mindful of the “**activation sequence**” or the events which he calls **mile-markers** that lead up to viewing porn which are detailed below:



1. Mile-marker one – The trigger or stimulus: These are the things that initiate the activation sequence and if we can understand and appreciate these triggers, the fight against the temptation is much more likely to be won. Obvious triggers might include getting a Victoria’s Secret catalogue or listening to provocative music and less obvious triggers might include being rejected or having a tough day at the office or at school. So, we must be aware of the sights, sounds, and/or events that fire us up to redline RPMs. To make that critical decision to not take the on-ramp to the superhighway, Fradd notes, we must turn on the thinking brain or prefrontal

cortex or “wise mind” to take charge over the more primitive parts of the brain. He adds that one of the easiest ways to turn on the prefrontal cortex or wise mind is to say out loud or even yell and label what is happening for example: “Caution - This is a trigger!”

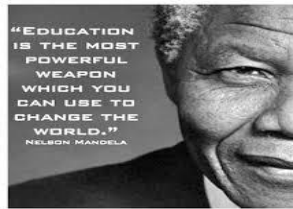
2. Mile-marker two – The emotional response: After the trigger, it is essential that we become aware of the emotional response that always follows. This could be a sense of excitement, curiosity or anticipation. Emotions can be very powerful and persuasive so head’s up, they can hijack us faster than a speeding bullet as was said about Superman.
3. Mile-marker three – The first thought: At almost lightning speed and seemingly simultaneously after the emotion comes, that first thought appears which might be, “I wanna do some porn” or “nobody has to know.” We can use our thinking brain to speak the truth: “I am stressed and frustrated and my typical go-to is to run to porn to make it go away.”
4. Mile-marker four – The chemical release: As discussed earlier, dopamine, is a very powerful force and drives seeking behaviors, in particular. We love the feel of it more than just about anything. Dopamine tells us, “Remember where you got your last fix the last hundred times and this is where you must go to get that amazing feeling again!” Those chemicals begin to be released in anticipation of the feeding fest.
5. Mile-marker five – The body language: At this point, our body begins to change in that heart rate increases, palms become cold or sweaty, eyes dilate, there can be a certain tingling feeling in the groin, butterflies are felt in the stomach, and/or our muscles tense up. Once again, it is imperative that we activate our wise/thinking part of the brain to stop the progression: “My body is ramping up and I need to take evasive action to shut this down or suffer the consequences!”
6. Mile-marker six – The battle: At this point we are in a fierce battle of pros and cons that bounce through our minds at rapid fire pace. This is the brain’s back-up safety mechanism to throw on the emergency brakes to keep us from taking the plunge into the abyss. Remember how the Orbital Frontal Cortex and the Anterior Cingulate function to control the more primitive drives and/or behaviors and the more that we engage in pornography the more we degrade this protective system. Hypofrontality sets in. Whatever process wins will determine the final step – behavior.
7. Mile-marker seven – The behavior: Sadly, if nothing was done during the progression in mile-markers one to seven, we will step by default to the gallows and consume porn.

Fradd (2017) writes, and I agree, that the best way to escape from the superhighway to porn is to never take the onramp in the first place and specially recommends two important techniques:

As noted above, we need to activate our wise mind and say out loud and maybe even yell the plan to ourselves whenever possible no matter where we might be in the above-detailed activation progression. This is powerful because the verbal cues wake us up to the reality of what is going on within and enable us to think about what we are doing in the moment. This strategy will be much more powerful if we do our homework and prepare for those moments rather than making the naïve assumption that we can always think on our feet in the heat of the moment.

Fradd (2017) writes that the following ideas to help prepare for the event have proven very helpful to help us deploy the thinking brain:

1. Educate yourself: We need to learn as much as we can about the impact of porn in our lives – how it damages our brains, our bodies, and our relationships. Much of this has already been covered in the previous pages of this paper so, again, congratulations, you are on your way. The more we are acutely aware of this information as we fuse it into consciousness, the easier it will be to short-circuit the activation sequence.



2. Write down exit strategies: Certainly, it is one thing to take a thoughts captive that put us at risk for porn seeking but it is altogether another to know what do next. So, well before we get sucked into another activation sequence, we need to write down what we plan to do. Fradd (2017) recommends using strong action words such as: **"Get up," "Get out of here," "Take a walk," or "Go for a nice run."** Finally, we need to not only write them down but additionally, we need to rehearse them by reading them out loud at least once a day, if not more. Like in the military, overlearning in garrison saves lives in battle. My son who was a Marine told me that he hated the training and thought that it was an unnecessary waste of time, but once he found himself in Fallujah, Iraq in combat situations, it all made sense, and it helped to keep him alive.



3. Think about sex: This is not about thinking about sex in terms of our next time in bed or our next "conquest." Rather, it means to take time to think philosophically about sex. That might mean that we ponder such for ourselves questions such as the following:
 - What is the nature of sex?
 - What is the purpose of sex?
 - Is sex just a means to "get off", or does it have a more meaningful and possibly even a spiritual purpose?
 - Is my sexuality just about "objectifying women," just about my own pleasure?
 - Is sex about fulfilling or blessing my partner? Is that equally or even more important than my own pleasure?
 - Is the way I am having sex harming my partner?

Strategy Three – Seek Online Help:

As nicely summarized by Matt Fradd (2017), there are many excellent online resources. A cautionary note is that we must be careful about being online as this is the conduit for accessing porn. Research the options and find the one that best suits you and your unique needs. Some are faith-based and others, not.

No Fap (nofap.com):



This site offers a secular and comprehensive community-based pornography recovery program which helps porn struggling people connect with a very supportive community of co-strugglers who are determined to escape the bondage of compulsive sexual addictions. It is widely known in the US and internationally.

LifeStar (lifestarnetwork.com):



As noted on their website, “The LifeStar Program and its Network of Therapists are dedicated to bringing hope, healing, and recovery to individuals, families, and spouses affected by unwanted compulsive sexual behaviors and the powerful grips of sex addiction. For over 20 years, LifeStar has been helping individuals, spouses, and families heal from the devastating effects of pornography addiction and other sexually compulsive behaviors. Through an innovative and proven three phase treatment program, this intensive outpatient group therapy approach gives participants the resources, support, and structure needed to experience a successful recovery from the damaging effects of pornography and sexual addiction. LifeStar is an internationally recognized treatment program in nearly [40 Cities](#) across the U.S. and Canada. Developed by Dan Gray and Todd Olson, LifeStar is run by highly trained and licensed therapists who specialize in sexual addiction recovery. Each phase of recovery is specifically designed to gently uncover, yet aggressively heal, the destructive patterns that create and maintain addictive behaviors. Workbooks, along with other materials, help provide education and structure throughout the different phases of treatment.” I have researched this website and am impressed with the apparent comprehensiveness of services offered.

The Porn Effect (theporneffect.com):

The Battle Plan

A Five Step Approach To Removing Pornography From Your Life

This is a Catholic site for teens and younger adults which makes an effort to expose the reality behind what is the destructive fantasy of porn and provides a five-step plan to find freedom from it.

Integrity Restored (integrityrestored.com):



Their mission statement best summarizes this excellent Christian-based website: “Our mission at Integrity Restored is to help restore the integrity of individuals, spouses, and families that have been affected by pornography and pornography addiction. Integrity Restored provides education, training, encouragement, and resources to break free from pornography, heal relationships, and to assist parents in preventing and responding to pornography exposure which is so devastating in the lives of our children. We are also a resource that trains and helps clergy in assisting families at the parish level, so that the domestic church truly becomes what it is, the human space in which we encounter Christ.”

Beggars Daughter (Beggarsdaughter.com):



This website offers women, particularly Christian women, who are struggling with porn addiction very helpful resources and support.

Addo Recovery (addorecovery.com):



**"Find Empathy, Safety, and Healing
Through Our Specialized Therapists**

Our network of 125+ specialized therapists help individuals and families overcome sexual addiction, betrayal trauma and infidelity.

Our **8,000+** clients report that **99%** felt safe and **96%** were given tools to improve their circumstance.

Customer Service Satisfaction is **97%**"

This site offers online addiction therapy programs as well as individual online and in-person therapy. It also specializes in betrayal trauma. It is nonsectarian and offers many personal testimonies of those who have struggled.

Real Battle Ministries (realbattle.org):



WE CARE + WE EDUCATE + WE ADVOCATE

Cofounded by Andrew Doan, MD, PhD – Medical Doctor & Neuroscientist and Julie Doan, RN – Mother & Family Advocate, **Real Battle Ministries** is a first-class, science and spiritually-based supportive website with the following mission: **"Educate:** Inform families on the mental, physical and spiritual costs of digital media overuse including developmental milestones for children, medical facts on brain health and addiction and suggestions for real life solutions. **Encourage:** Support families to be more informed on the critical issues of digital media overuse and addiction in their homes and to encourage support to pursue alternative meaningful activities. To encourage your child to achieve his or her gifted potential.

Support: Assist parents and children wishing to limit digital media by offering practical advice for managing digital media, promoting ongoing healthy childhood development, suggesting replacement activities and non-digital media hobbies, and networking with other like-minded families.” This site offers numerous links to scholarly articles and additional resources for treatment and support. It is the best supportive website I (Jeff) have reviewed.

Strategy Three – Learn Healthy Self-Regulation Skills:



As noted earlier, people who are addicted often live in a state of sympathetic arousal and they often seek pornography to quell that state, one that makes them feel as though they are in “neurological hell” within their bodies. Although porn seeking will bring some immediate relief, in the end, this backfires and only makes that internal activation worse as previously argued. Therefore, we need to learn healthy strategies to restore neurological peace. Although we may already know many of these strategies, we too often don’t exercise them on a regular basis.

Mindfulness is a type of meditation which allows us to focus on being intensely aware of what we are sensing and feeling in the moment, without interpretation or judgment. Practicing mindfulness involves breathing methods, guided imagery, and other practices to relax the body and mind and help reduce stress.

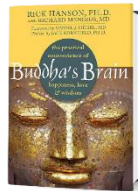
The Mayo Clinic offers a brief but very helpful set of mindfulness skills which I find very helpful and encourage you to give them a try. They are briefly described below:

- Pay attention: It's hard to slow down and notice things in a busy world. Try to take the time to experience your environment with all your senses — touch, sound, sight, smell and taste. For example, when you eat a favorite food, take the time to smell, taste and truly enjoy it.
- Live in the moment: Try to intentionally bring an open, accepting and discerning attention to everything you do. Find joy in simple pleasures.
- Accept yourself: Treat yourself the way you would treat a good friend.
- Focus on your breathing: When you have negative thoughts, try to sit down, take a deep breath and close your eyes. Focus on your breath as it moves in and out of your body. Sitting and breathing for even just a minute can help. Slowing down our breathing and taking in our breath more deeply into our abdomen (called abdominal breathing) are most important. This helps to promote a balance of oxygen and carbon dioxide – the brain needs both in balance to promote healthy functioning and to restore us to bring on parasympathetic calm.
- Body scan meditation: Lie on your back with your legs extended and arms at your sides, palms facing up. Focus your attention slowly and deliberately on each part of your body, in order, from

toe to head or head to toe. Be aware of any sensations, emotions or thoughts associated with each part of your body.

- **Sitting meditation:** Sit comfortably with your back straight, feet flat on the floor and hands in your lap. Breathing through your nose, focus on your breath moving in and out of your body. If physical sensations or thoughts interrupt your meditation, note the experience and then return your focus to your breath.
- **Walking meditation:** Find a quiet place 10 to 20 feet in length and begin to walk slowly. Focus on the experience of walking, being aware of the sensations of standing and the subtle movements that keep your balance. When you reach the end of your path, turn and continue walking, maintaining awareness of your sensations (Mayo Clinic, accessed October 20, 2019).

For those who are interested in reading one of the best and most scientifically-based books out there on mindfulness and self-regulation, I would recommend Drs. Hanson and Mendius' excellent work, *Buddha's Brain*.



Strategy Four – Accountability:

No man is an island, entire of itself;
every man is a piece of the continent,
a part of the main.

- John Donne



As the above 17th century quote from the famous English poet John Donne suggests, we are not in this alone and so we would do well to recognize that our struggle to free ourselves from pornography cannot be won alone.

I strongly encourage you to find an **accountability partner** or group. ~~li Type equation here.~~would not recommend that this individual be your love partner or spouse as this places the person you most care about in a very difficult if not untenable and/or unhealthy position. You might also seek online accountability sources, some of which are noted earlier or groups/individuals in your community or your place of worship.

Consider using accountability software. Among the best are:

Covenant Eyes (covenanteyes.com):



Matt Fradd (2017) writes, and we agree, that this is absolutely the best filtering and accountability software on the market today. With Covenant Eyes you can use the filter component which filters out bad sites and/or the accountability component which sends out a report to your designated accountability partner. You and/or your accountability partner will receive a weekly report of which sites that were blocked, when the visit was attempted, and what search terms were used to get there.

Net Nanny (netnanny.com):



Net Nanny is a highly powerful platform for parents to control what their children are seeing and doing on the web. It doesn't just manage the time kids spend on the web. It also helps prevent cyberbullying, monitors cell phone activity, masks profanity, and blocks access to pornography. How intensely you choose to use it is up to you. Its suite of tools is accessible on most operating systems, either via web browser or mobile app. No matter where you are, you can stay connected and plugged-in to what your child is doing.

Accountable2You (accountable2you.com):



Accountable2You is Internet accountability software with an emphasis on real-time habit management. It can send out instant text alerts to your accountability partners. The software is easy to install on any number of devices. It's compatible with Apple, Windows, and Android operating systems. It can even run within Chrome and Linux. You can also assign specific partners to individual devices.

X3 Watch (x3watch.com):



X3 Watch is Internet accountability software with available tools for self-improvement. You can share a single activity tracker with your spouse or your whole family. This is designed to foster conversations about online responsibility. The company also offers online video workshops. These can help you navigate the software. They can also help you find your way through the challenges of addiction.

If **in-home interventions** do not improve your situation, then a referral to a professional specifically experienced in media/pornography addiction is appropriate and, in more extreme cases, **residential**

treatment specifically tailored to address media/pornography addiction should be considered and among the best are:

reSTART cofounded Dr. Hilarie Cash, PhD, Chief Clinical Director and Cosette Rae, CEO, Chief Executive Officer, MSW, LICSW, ACSW, CDWF:

reSTART

ReSTART specializes in behavioral addictions, Internet gaming disorder, video game addiction treatment, gambling, virtual reality, augmented reality, and excessive screentime and social media use. Care plans involve an in-depth examination into the factors leading to problematic screen use. In addition to adult treatment, reSTART offers **in-depth residential intervention for youth 13-18** experiencing video game addiction, Internet gaming disorder, social media addiction, excessive screentime use, and often associated problems to include academic difficulties, depression, anxiety, ADD/ADHD, learning differences, and family conflict. I have personally toured their treatment center and found the staff to be among some of most compassionate, dedicated, and well-trained professionals serving residential clients I have ever met. Their facilities are innovative and state-of-the-art. Contact Johnny Tock, MA, LMHC, Chief Admissions & Business Development Director at: Phone: 800.682.6934, email: johnny.tock@restartlife.com, website: <https://www.netaddictionrecovery.com/about-restart-tech-treatment/>. This is the first and best residential treatment facility for media addictions in the country.

Launch House founded by Dr. Kardaras:



Launch House offers full mental health services for adults and adolescents, including the attendant mental health and screen addiction issues that many young people face today. Services include outpatient counseling, psychiatric assessments and medication management, as well as more integrative and holistic modalities to help people meaningfully move forward in their lives. In addition, **residential “digital detox” services** are available for those who are overworked, overstressed, or have developed an over-dependence on screens and technology. At the Launch House’s digital detox program, the overstressed client can un-plug, detox, and calm their overstimulated adrenal system by grounding themselves into more balanced and healthy lifestyle patterns. Contact Dr. Kardaras at: Cell: 347.528.8108, email: drk@megarecovery.org, website: <https://www.drkardaras.com/launch-house.html>.

In Closing:



I realize that when you are a **hammer, everything can seem as a nail**. But as a clinical psychologist, I have watched the evolution of Internet pornography facilitate the devolution of the mind, body, and soul of many of us and cannot fail to talk about what might be uncomfortable for me and for you. The **nail in the coffin** for far too many of our men, sons, fathers, and ever increasingly, women, daughters, and mothers is pornography.



It is the elephant in the room and its invasion must not be ignored. I urge you to save your own mind, body, and soul or, if you are not afflicted with this plague, please reach out and help to save the mind, body, and soul of another. Together and connected, we can do this!

Should you have any feedback, questions or concerns, please feel free to reach out to me via email @ jeffrey.hansenphd@comcast.net or by my office phone at 360.870.3801.

References

- Alexander, B. "Addiction: The View from the Rat Park," www.Brucekalaxander.com, 2010, <http://brucekalexander.com/articles-speeches/rat-park/148-addiction-the-view-from-rat-park>.
- Anda, R. Felitti, V., et al., "The Enduring Effects of Abuse and Related Adverse Experiences in Childhood: A Convergence of Evidence from Neurobiology and Epidemiology. *Archives of Psychiatry and Clinical Neuroscience* (2006).. 256. 174-186. 10.1007/s00406-005-0624-4.
- APBNews.com, August 10, 2000. "Inside the Mind of Jeffery Dahmer,"
- Atwood, F. & Smith, C. (2014). Porn Studies: An introduction. *Porn Studies*, 1:1-2, 1-6, DOI: 10.1080/23268743.2014.887308.
- Barta, M. (2018). *TINSA: Trauma Induced Sexual Addiction*. North Charleston, SC: CreateSpace Independent Publishing Platform.
- Belk, R. "Worldly Possessions: Issues and Criticisms," *Advances in Consumer Research* 10 (1983): 514-19.
- Berman et al., "Interacting with Nature Improves Cognition and Affect for Individuals with Depression." *Journal of Affective Disorders* 140, no. 3 (Nov. 2012): 300 – 305.
- Betkowski, B. "1 in 3 boys heavy porn users, study shows," [Eurekalert.org](http://www.eurekalert.org), Feb. 23, 2007. http://www.eurekalert.org/pub_releases/2007-02/uoa-0it022307.php (accessed June 7, 2018). 57.
- Booton, J, "Porn industry's billion dollar new frontier," *Market Watch*, July 26, 2015. <https://www.marketwatch.com/story/how-the-future-of-virtual-reality-depends-on-porn-2015-07-15> (accessed May 21, 2018).
- Cacioppo, J. et al., "Day-to-Day Dynamics of Experience-Cortisol Associations in a Population-Based Sample," *PNAS* 103 no. 45 (October 2006): 17058-17063.
- PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/17075058>
doi link: <https://doi.org/10.1073/pnas.0605053103>
- Cacioppo, J. et al., (2008). *Loneliness: Human Nature and the Need for Social Connections*. New York, NY: W. W. Norton & Company.
- Cacioppo, J. et al., "Perceived Social Isolation Makes Me Sad: 5-Year Cross-Lagged Analyses of Loneliness and Depressive Symptomatology in the Chicago Health, Aging, and Social Relations Study," *Psychology and Aging* 25, no.2 (2010): 453-463.
- PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/20545429>
doi link: <https://doi.org/10.1037/a0017216>
- Catechism of the Catholic Church, paragraph 565. (Rome: Libreria Editrice Vaticana. Approved by Pope John Paul II in 1992) at paragraph 1776

Chrousos, G. et al., “Metabolic Consequences of Stress during Childhood and Adolescence,” *Metabolism, Clinical and Experimental* 61, no. 5 (May 2012): 611-19, doi: 10.1016/j.metabol.2011.10.005.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/22146091>
doi link: <https://doi.org/10.1016/j.metabol.2011.10.005>

Cigna (2018).
<https://www.cigna.com/newsroom/news-releases/2018/new-cigna-study-reveals-loneliness-at-epidemic-levels-in-america>

Cohen S. et al., The McGill Quality of Life Questionnaire: a measure of quality of life appropriate for people with advanced disease. A preliminary study of validity and acceptability. *Palliative Medicine* 9, no. 3 (1995): 207–219.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/7582177>
doi link: <https://doi.org/10.1177/026921639500900306>

Canes, P., et al., (2007). *In the Shadows of the Net: Breaking Free of Compulsive Online Sexual Behavior*. Center City, MN: Hazelden Foundation.

Catholic News Agency <https://www.catholicnewsagency.com/resources/life-and-family/pornography/the-harmful-effects-of-pornography> (accessed October 22, 2019).

Chrousos, G. et al., “Metabolic Consequences of Stress during Childhood and Adolescence,” *Metabolism, Clinical and Experimental* 61, no. 5 (May 2012): 611-19.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/22146091>
doi link: <https://doi.org/10.1016/j.metabol.2011.10.005>

Cline, V.B. (1999) *Pornography's Effects on Adults and Children*. New York: Morality in Media, p. 9.

Covenant Eyes (2013). <https://www.covenanteyes.com/resources/download-your-copy-of-thepornography-statistics-pack/>

de Boer, B. et al. (2004). Erectile dysfunction in primary care: prevalence and patient characteristics. The ENIGMA study. *International Impotency Research*, 16, 358-354.

DeKeseredy, W.S. (2016). Pornography and Violence Against Women. In C.A. Cuevas & C.M. Renneson (Eds.). *The Wiley Handbook on the Psychology of Violence*. (First Edition ed): John Wiley & Sons, Ltd

Di Chiara. & Imperato, A. (1988). Drugs abused by humans preferentially increase synaptic dopamine concentrations in the mesolimbic system of freely moving rats.
<http://www.pnas.org/content/85/14/5274/short> (accessed September 7, 2019),

Dindinger, R. (2014). *Pornography Addiction: Breaking the Chains*. Middletown, DE: Self Published.
Dunckley, V. "Electronic Screen Syndrome: An Unrecognized Disorder?" *Psychology Today*, July 23, 2012.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/>
doi link: <http://doi.org/>

Dines, G. (website)
<https://www.culturereframed.org/> (accessed September 20, 2019)

Dines, G. Pornland: (2010) *How Porn has Hijacked our Sexuality*. Boston: Beacon Press.

Doan, A. (2012). *Hooked on Games*. Coralville, IA: F.E.P. International, Inc.

Dobson, J., interview with Ted Bundy, Florida State Prison, January 24, 1989.

Donevan, M., & Mattebo, M. (2017). The Relationship between Frequent Pornography Consumption, Behaviors, and Sexual Preoccupancy among Male Adolescents in Sweden, *Sexual & Reproductive Healthcare*. (2017), DOI: 10.1016/j.srhc.2017.03.002

Doornwaard, S. M., van den Eijnden, R. J. J. M., Baams, L., Vanwesenbeeck, I., & ter Bogt, T. F. M. (2016). Lower psychological well-being and excessive sexual interest predict symptoms of compulsive use of sexually explicit internet material among adolescent boys. *Journal of Youth and Adolescence*, 45(1), 73-84. DOI: 10.1007/s10964-015-0326-9

Downing, M. J. et al. (2016). Sexually Explicit Media Use by Sexual Identity: A Comparative Analysis of Gay, Bisexual, and Heterosexual Men in the United States. *Archives of Sexual Behavior*. DOI:10.1007/s10508-016-0837-9

Driscoll, M. (1989). *Porn-Again Christian*. Seattle, WA: Mars Hill Church
Dunckley, V. (2015). *Reset your Child's Brain*. Novato, CA: New World Library.

Felitti, V. and Anda, R. (2009). "The Hidden Epidemic: The Impact of Early Life Trauma on Health and Disease." <https://www.theannainstitute.org/LV%20FINAL%202-7-09.pdf> (accessed 3 August 2019).

Felitti, V. et al., (2014) "Chadwick's Child Maltreatment: Sexual Abuse and Psychological Maltreatment," Volume 2 of 3, Fourth Edition.

Felitti, V. "Adverse Childhood Experiences and the Risk of Depressive Disorder in Childhood," *Journal of Affective Disorders* 82 (November 2004): 217-225.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/>
doi link: <http://doi.org/>

Fradd, M. (2017). *The Porn Myth: Exposing the Reality Behind the Fantasy of Pornography*. San Francisco, CA: Ignatius Press.

Foubert, J. (2017). *How Pornography Harms: What Today's Teens, Young Adults, Parents, and Pastors Need to Know*. Bloomington, IN: LifeRich Publishing.

Green, L., Brady, D., Ólafsson, K. Hartley, J., & Lumby, C. (2011). Risks and safety for Australian children on the internet: full findings from the AU Kids Online survey of 9–16 year olds and their parents, ARC Centre of Excellence for Creative Industries and Innovation. Available from URL: <http://www.cci.edu.au/reports/AU-Kids-Online-Survey.pdf>

Hanson, R. & Mendius, R. (2009). *Buddha's Brain*. Oakland, CA: New Harbinger Publishing.

Hari, J. "Everything You Think You Know about Addiction Is Wrong." TED Global London, 14:42. June 2015.

https://www.ted.com/talks/johann_hari_everything_you_think_know_about_addiciton_is_wrong?language=en

Hari, J. (2018). *Lost Connections: Uncovering the Real Causes of Depression – And the Unexpected Solutions*. Berryville, VA: Berryville Graphics, Inc.

Hilton, D. & Watts, C. (2011) Pornography addiction: A neuroscience perspective. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3050060/> (accessed September 8, 2019).

Horvath, T. et al. "What Causes Pornography Addiction.?" http://www.mhssso.org/poc/view_doc.php?type=doc&id=49379&cn=1413 (accessed July 29, 2019).

Kardaras, N. (2016). *Glow Kids*. New York, NY: St. Martin's Press.

Kasser, T. (2003). *The High Price of Materialism*. Cambridge: MIT Press.

Kingston, D. A., Malamuth, N. M., Fedoroff, P., & Marshall, W. L. (2009). The importance of Individual differences in pornography use: Theoretical perspectives and implications for treating sexual offenders. *Journal of Sex Research*, 46(2/3), 216-232. DOI:10.1080/00224490902747701

Klaassen, M. J. & Peter, J. (2015). Gender (In)equality in Internet pornography: A Content analysis of popular pornographic Internet video. *The Journal of Sex Research*, 52(7). <https://www.tandfonline.com/doi/full/10.1080/00224499.2014.976781>

Koenig H. et al., "Attendance at religious services, interleukin-6, and other biological parameters of immune function in older adults," *International Journal of Psychiatry Medicine*, no. 27 (1997): 233–250.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/9656726>
doi link: <https://doi.org/10.2190/40NF-Q9Y2-0GG7-4WH6>

Kuhn, S. & Gallinat, J. (2014). Brain Structure and Functional Connectivity Associated with Pornography Consumption the Brain on Porn. *JAMA Psychiatry*, DOI:10.1001/jamapsychiatry.2014.93

Laier, C, Schulte, F. P., & Brand, M. (2013). Pornographic picture processing interfaces with working

memory performance. *Journal of Sex Research*, 50(7), (642- 652).
DOI:10.1080/00224499.2012.716873

Lambert, N., Negash, S., et al. "A Love That Doesn't Last: Pornography Consumption and Weakened Commitment to One's Romantic Partner." *Journal of Social and Clinical Psychology* 31, No. 4 (2012): 410-438.

Layden, M.A. (2010). Pornography and Violent Acts: A new Look at the Research. IN J.R. Stoner and D.M Hughes, (Eds.). *The social costs of pornography*. USA: Witherspoon Institute.

Levine, P. (2008). *Healing Trauma*. Boulder, CO: Sounds True, Inc.

Louv, R. (2005). *Last Child in the Woods*. New York: Workman Publishing.

MacLean, P. (1990). *The Brain in Evolution*. New York, NY: Plenum Press.

Malamuth, N., Addison, T. & Kross, M. (2000). Pornography and sexual aggression: Are there reliable effects and can we understand them? *Annual Review of Sex Research*, 11, 267-91

Marmot et al., "When reciprocity fails: effort-reward imbalance in relation to coronary heart disease and health functioning within the Whitehall II study," *Occupational and Environmental Medicine*, 59 (2002): 777-784, doi:10.1136/oem.59.11.777

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/12409537>
doi link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1740240/>

Mayo Clinic <https://www.mayoclinic.org/healthy-lifestyle/consumer-health/in-depth/mindfulness-exercises/art-20046356> (accessed October 20, 2019).

Mental Health Net (2016).
<https://www.mentalhelp.net/porn/> (accessed September 18, 2019).

Merck Manual.
<https://www.merckmanuals.com/home/brain,-spinal-cord,-and-nerve-disorders/autonomic-nervous-system-disorders/overview-of-the-autonomic-nervous-system> (accessed August 20, 2019).

Monbiot, G., "The Age of Loneliness is Killing Us," *Guardian*, October 14, 2014.,
<https://www.theguardian.com/commentisfree/2014/oct/14/age-of-loneliness-killing-us> (accessed September 8, 2019).

National Coalition for the Protection of Children & Families (2010).
http://en.wikipedia.org/wiki/Internet_pornography_statistics#cite_note-Internet_Usage_bsecure-4

Nepomnaschy, P. et al., "Stress and Female Reproductive Function: A Study of Daily Variations in Cortisol, Gonadotrophins, and Gonadal Steroids in a Rural Mayan Population," *American Journal of Human Biology: The Official Journal of the Human Biology Council* 16, no. 5 (October 2004): 523-32,

doi:10.1002/ajhb.20057.

doi link: <http://doi.org/10.1001/archpsyc.64.9.1032>

Newlihabits.com (2010). <https://newlifehabits.com/> (accessed 8 September 2019).

Ogasa, O. and Goddam, S. (2011). A Billion Wicked Thoughts: What the World's Largest Experiment Reveals about Human Desire. New York, NY: Penguin Group (USA), Inc. p.8.

O'Sullivan, L., Byers, E., Brotto, L., Majerovich, J., & Fletcher, J. (2016) Longitudinal Study of Problems in Sexual Functioning and Related Sexual Distress among Middle to Late Adolescents. *Journal of Adolescent Medicine and Health*. DOI:10.1016.j.jadohealth.2016.05.001

Owens E. W., Behun R. J., Manning J. C., & Reid, R. C. (2012). The Impact of Internet Pornography on Adolescents: A Review of the Research. *Sexual Addiction & Compulsivity: The Journal of Treatment & Prevention*, 19(1-2), 99-122. DOI: 10.1080/10720162.2012.660431.

Park, B. et al. (2016). Is internet Pornography Causing Sexual Dysfunctions? A Review of Clinical Reports. *Behavioral Science* 6.

Peter, J & Valkenburg, P. (2007). Adolescents' exposure to a sexualized media environment and notions of women as sex objects. *Sex Roles*, 56, 281-395.

Peter, J & Valkenburg, P. (2009). Adolescents' exposure to sexually explicit Internet material and notations of women as sex objects: Assessing causality and underlying processes. *Journal of Communication*, 59, 4-7-433. DOI:10.1111/j1460-2466.2009.01422.x

Peter, J. & Valkenburg, P. (2016). Adolescents and pornography: A review of 20 years of research, *The Journal of Sex Research*, DOI: 10.1080/0022449.2016.1143441.

Proven Men Ministries. Pornography Survey and Statistics. 2014.
<http://www.provenmen.org/2014pornsurvey/> (accessed July 28, 2019).

Perry, B. and Pollard, R. "Altered Brain Development Following Global Neglect in Early Childhood." *Society for Neuroscience: Proceeding from Annual Meeting*. Now Orleans.

Pizzol, D., Bertoldo, A., & Foresta, C. (2016). Adolescents and web porn: A new era of sexuality. *International Journal of Adolescent Medicine and Health*, 28(2), 169-173. DOI: 10.1515/ijamh-2015-0003

Pornography Statistics, 2006). http://www.familysafemedia.com/porography_statistics.html (accessed 4 August 2019)

Roberts, T. (2008). Pure Desire. Bloomington, MN: Bethany House Publishers.

Ropelato, J. (n.d.) "Internet Pornography Statistics" Retrieved July 27, 2019 from Top Ten Reviews, TechMediaNetwork: <http://internet-filter-review.toptenreviews.com/internet-pornography-statistics.html>

Sapolsky, R. (2002). *A Primate's Memoir*. London: Vintage.

Sapolsky, R. "Cortisol Concentrations and the Social Significance of Rank Instability Among Wild Baboons," *Psychoneuroendocrinology* 17, no. 6 (November 1992): 701-709.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/1287688>

SCRIBD "The Digital Divide: How the Online Behavior of Teens is Getting Past Parents," McAfee.com. June 2012. <http://www.cil.cnrs.fr/CIL/IMG/pdf/digital-divide-study.pdf> (accessed July 28, 2019).

Skinner, K. (2005). *Treating Pornography Addiction: The Essential Tools for Recovery*. Lindon, UT: K. Skinner Corporation.

Skinner, K. (2011).
<https://www.psychologytoday.com/us/blog/inside-porn-addiction/201111/can-pornography-trigger-depression> (accessed September 11, 2019).

Stanley, N., Barter, C., Wood, M., Aghtaie, N., Larkins, C., Lanau, A., & Överlien, C. (2016). Pornography, sexual coercion and abuse and sexting in young people's intimate relationships. *Journal of Interpersonal Violence*. 1-26. DOI: 10.1177/0886260516633204

Steinberg, E. E., et al. (2013). A causal link between prediction errors, dopamine neurons and learning. *Nature Neuroscience*, 16, 966-993.

Strawbridge, W. et al., Frequent attendance at religious services and mortality over 28 years. *American Journal of Public Health*, No. 87 (1997): 957-961.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/9224176>

Strohle, A., "Physical Activity, Exercise, Depression, and Anxiety Disorders," *Journal of Neural Transmission* 116, no. 6 (June 2009): 777.

PubMed link: <https://www.ncbi.nlm.nih.gov/pubmed/18726137>

doi link: <https://doi.org/10.1007/s00702-008-0092-x>

Stuff for Educators (2014) <http://stuff4educators.com/> (Accessed September 4, 2019)

Sun, C., Bridges, A., Johnson, J., & Ezzell, M. (2016). Pornography and the male sexual script: An analysis of consumption and sexual relations. *Archives of sexual behavior*, 1-12. DOI: 10.1007/s10508-014-0391-2 van Oosten, JMF; Peter J; & Vandenbosch L. (2016)

Sutherland, J. (2014). *Jumbo: The Unauthorized Biography of a Victorian Sensation*. London: Aurum Press.

The Guardian (2013). <https://www.theguardian.com/commentisfree/2013/sep/26/brain-scans-porn-addicts-sexual-tastes> (note: type in porn addicts in search bar) (assessed 8 September 2019).

The Guardian (2013)
<https://www.theguardian.com/science/head- quarters/2013/sep/30/neuroscience-psychology>
(accessed September 8, 2019).

The neurobiology of romantic love (2018).
<https://sexinfo.soc.ucsb.edu/article/neurobiology-romantic-love> (accessed October 2, 2019).

Turner, A. (2017). *Breaking the Feedback Loop: How I Liberated myself from Internet Addiction and you can too*. Lexington, KY: Phanarian II.

Volkow, N. et al. "Addiction: Decreased reward sensitivity and increased expectation sensitivity conspire to overwhelm the brain's control circuit. *Bioassays* 32(9), (2010): 748-755

Webroot. "Internet Pornography by the Numbers: A Significant Threat to Society." Webroot Smarter Cybersecurity. <https://www.webroot.com/us/en/resources/tips-articles/internet-pornography-by-the-numbers> (accessed July 27, 2019)

Wallenius, M., "Salivary Cortisol in Relation to the Use of Information and Communication Technology (ICT) in School-Aged Children," *Psychology*, no. 1 (2010): 88-95, doi:10.4236/psych.2010.12012.

doi link: <http://doi.org/10.4236/psych.2010.12012>

Weaver III, J.B., Sargent Weaver, S., Mays, D., Hopkins, G.L., Kannenberg, W., & McBride, D. (2011). Mental- and physical-health indicators and sexually explicit media use behavior by adults. *The Journal of Sexual Medicine*, 8(3), 764 – 772. DOI: 10.1111/j.1743-6109.2010.02030.x

Webster's Third International Dictionary

Wilson, G. (2014). *Your Brain on Porn*. UK: Commonwealth Publishing.

Wright, P. J., Tokunaga, R. S., & Kraus, A. (2016). A meta-analysis of pornography consumption and actual acts of sexual aggression in general population studies. *Journal of Communications*, 66: 183–205. DOI: 10.1111/jcom.12201

Zimbardo, P. and Coulombe, N. (2016). *Man Interrupted*. Newburyport, MA: Red Wheel/Weiser, LLC.

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